I·T·U LESSONS IN PRINTING

LINOTYPE AND INTERTYPE UNIT VIII

SECRETS OF SUCCESS AS AN OPERATOR

BUREAU OF EDUCATION

INTERNATIONAL TYPOGRAPHICAL UNION

INDIANAPOLIS, INDIANA

A Word of Introduction

+ + +

HEREWITH is presented the third edition of lessons, covering mastery of Linotype and Intertype keyboards. The system of fingering advocated is distinctly superior to any other known method. These lessons have been prepared by one of America's highest authorities, and in close co-operation with the companies manufacturing these machines. For this reason, and because issued by the largest and oldest printing organization in America, they may be accepted as the best and most reliable lessons now available on the subject.

These lessons will be found of superior worth for school use, as well as for instruction in the shop. The International Typographical Union is training more printers than any other organization in the world, and it cannot afford to sponsor a system of keyboard operation which does not offer the learner the fullest assurance of satisfaction.

Operators who have already learned fingering methods which produce satisfactory results, other than the one here presented, are not encouraged to change their methods to conform to these new findings. Those who are taking up the machine for the first time, however, should master the official keyboard fingering system in preference to all others.

Follow the system carefully. The only practical way to master the keyboard is to follow faithfully the fingering system given in these lessons. This system provides the beginner with basic principles by which speed may be obtained without excessive fatigue.

CONTENTS

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 1

HOW TO BECOME A SUCCESSFUL OPERATOR; HOW TO OPERATE THE KEYS

BEFORE commencing study of the lessons in this unit, the student will do well to consider the basic qualifications considered necessary for the successful mastering of linecasting machines. With this knowledge, he will know whether he possesses the necessary qualifications to assure competency as a Linotype or an Intertype operator.

Health. Good health is essential because the work of the operator is of a confining nature, and there is not much opportunity for physical exercise. Good eyesight is a very important factor, owing to the constant reading required. A keen and alert sense of hearing is a valuable aid, although a few deaf operators are running machines successfully.

Educational qualifications. Experience has shown that a high-school education is necessary, but whatever else is possessed, a practical, working knowledge of the English language is essential. The beginner must understand grammatical construction, punctuation, capitalization, and division of words, in order to interpret the copy correctly.

Knowledge of printing. Machine composition is based on hand composition. The Linotype and the Intertype are only mechanical tools used in performing more rapidly the work done by the hand compositor. Therefore, it is logical that the student must have a thorough knowledge of printing, together with some understanding of typographical layouts, as a foundation for taking up machine composition.

General qualifications. The student should possess a quick, keen mind, coupled with an alert sense of hearing that will tell him at all times just what the machine is doing. A great many operators know by the sound of the Linotype or the Intertype whether it is functioning properly. Concentration is one of the vital elements entering into keyboard manipulation. Without the ability to concentrate, the student develops into an erratic, bungling operator who drifts from shop to shop.

Steps toward attaining speed. To all machine operators, especially beginners, the attainment of a high rate of speed, with accuracy, is the ultimate goal. Several steps are necessary in order to reach the highest point of efficiency in keyboard manipulation.

Familiarity with the keyboard is the first essential. The fingers must be trained so that the key buttons may be touched without conscious effort on the part of the operator. A mental picture of the keyboard, attained only by accurate memorization, should always be distinct in the eyes of the operator, obviating the necessity for constantly looking directly at the key buttons.

Proper application. The operator, to become swift, must be able to read copy quickly and intelligently, have a good working knowledge of the functions of the machine, and possess steady nerves. An operator may be able to set a word, or two or three words, very rapidly, but unless he is able to maintain a uniformity of motion, he will be excelled in a day's run by operators who apparently are not moving their fingers with equal rapidity.

Steady operation necessary. Steadiness in operating is necessary if an operator desires to become rapid, and this can only be attained by the student training himself to read copy as he manipulates the key buttons, without varying his motion. A hand compositor can stop to memorize his copy, but the operator cannot do this, as it develops an irregular habit which is detrimental to efficiency. It is extremely important, however, that the operator carry the sense of the sentence in his mind, as he composes the lines.

Keyboard manipulation. After he has reached a point where he has confidence in himself, the beginner should at once try to operate without looking at the keyboard. At first, he will make errors and will not set as much matter. He will never become a proficient operator unless he starts correctly. If an operator persistently endeavors to assemble the lines without looking at the keyboard, he will soon be able to keep his eyes on his copy. Then will come steadiness in operating.

Character location. The student should continue to make a careful study of his keyboard, even after he has become a fairly capable operator. The permanent fixation of the location of the small capitals and the points in the mind will require long, intensive study. The standard keyboard arrangement for two-letter machines is shown in Fig. 1. Copies of keyboard layouts, other than the standard English, may be obtained for study from the machine manufacturers.

Instruction must be supplemented by practice. In order to become proficient, practice must be obtained by the student at regular intervals on a running machine. Although it is advisable to always keep a practice keyboard at home for fingering, it is essential, for best results, that the exercises in these lessons be set on a "live" machine.

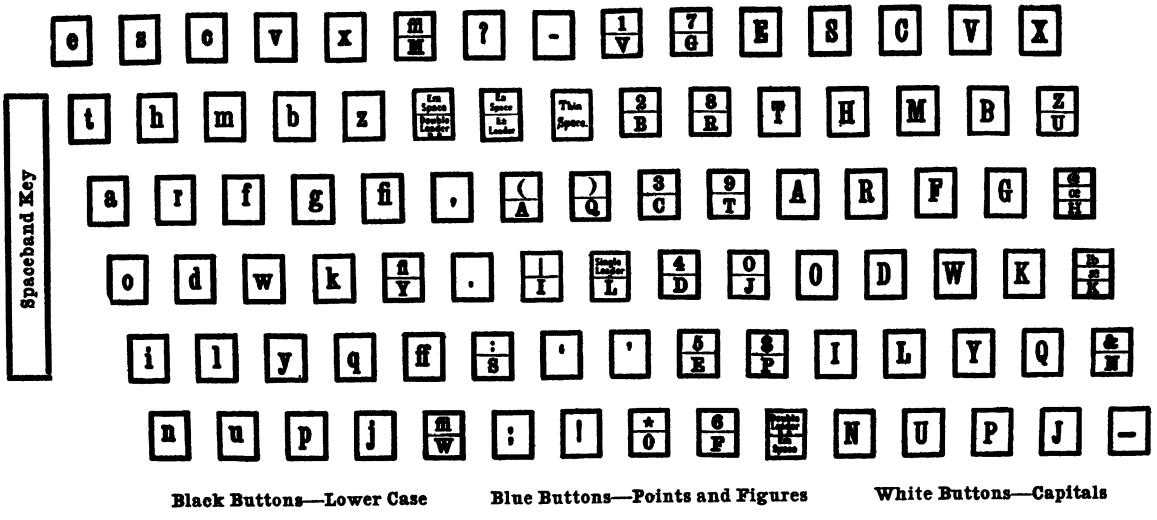


FIG. 1—The standard Linotype and Intertype arrangement for the use of two-letter matrices with italic and small caps. It can also be used for headletter or a combination of headletter and straight matter. This above arrangement may be used for reference and study when away from the keyboard, and will also prove valuable for practice work if placed in front of the dummy keyboard or machine on a level with the eyes. First study and memorize the location of the keys. When fairly proficient, do the sentence exercises by looking at Fig. 1 instead of the keys.

Speed is only one factor. Producing slugs speedily does not make a skilled operator. Speed is desirable, but accuracy is absolutely essential and must not be sacrificed for speed. If, in an effort to become a "swift," the operator neglects the principles that characterize good printing, it would have been far better not to have made the attempt. No efficient operator would send up a line improperly spaced. This does not apply to a so-called "short line," but rather to a line where the word "the" could easily be added, even though the spacebands would space out the line without it.

Errors common to operators. Many operators, in their desire to "hang the elevator," have acquired the bad habit of sending up the lines as soon as they think they have enough spacebands therein to space them out. The result, of course, is widespacing, an indication of slovenly workmanship, not tolerated in first-class shops. Accuracy in spelling, uniformity in capitalization, correct division of words, and punctuation are very important adjuncts to a productive output of Linotype or Intertype machine composition.

Start operating slowly. Do not try to move the fingers faster than they can touch the right key buttons. To do so will cause confusion and loss of time. When starting on a "take," go slowly; ascertain if there are any instructions about the setting and then start. Maintain an even, steady motion—requisite to successful operation.

Another very important factor is to resume operating as soon as the assembling elevator returns to normal position. The line should not be watched while it is being carried into the first elevator by the line delivery.

Only a few become swifts. All beginners will not eventually become swifts, but with the requisite typographical knowledge, the majority can become competent operators. The man who can be relied upon to do his work properly is much more valuable than the nimble-fingered workman who cannot be depended upon when accuracy is required. Cleanliness of the machine, care of the matrices and spacebands, and the proper attention to the plunger and metal pot contribute about 20 per cent to operating efficiency.

Student must drive himself beyond a certain point. After the student has been working on the machine about four or five weeks, and perhaps has attained the speed of about 1,500 to 2,000 ems an hour, he will find that it will be difficult to increase his speed. This is the turning point in the beginner's upward climb. He must start immediately to drive himself. In other words, he must force himself out of this stage, and begin to improve by fingering the keyboard faster. He will probably make a few more errors for the time being. As he gradually becomes accustomed to the higher rate of speed, however, his accuracy will return. Speed does not come to the beginner. He must go after it and get it.

Keeping time on composition. A very good method for the student to follow at this point is to time himself on filling a machine galley and try to reduce the time necessary to fill the next galley. This method, frequently repeated, will not fail to give a substantial increase in speed. The careful operator examines a slug now and then, and notes its face and bottom, to see that the lines are coming out satisfactorily. In this way, he will relieve himself of the necessity of resetting slugs which will not print properly.

In beginning the study of the keyboard, do not allow your anxiety to produce composition cause you to skim hurriedly through the text. There

FIG. 2—Proper position of operator at the keyboard Body erect, hands level with elbows, and chair at convenient distance from the keyboard.

are certain things with which you should be familiar before touching the keyboard. Get the full benefit of the instruction by studying carefully before beginning machine practice.

First lesson involves memorization of standard keyboard arrangement. The arrangements in sections of the Linotype and the Intertype machines are practically the same, the only difference being that, on the latter, we find on the right, alongside the capital section, an extra spaceband key. As in learning to play the piano, the child fixes the location of the keys in his mind, so, in mastering the linecasting machine, the student must thoroughly familiarize himself with the arrangement and position of the keys.

The first task of the learner, then, must be to memorize the keyboard, so that it can be operated without looking directly at the fingers or at the keys, thus leaving the eyes free to read the copy and watch the assembling of the line (Fig. 1).

While you are studying this lesson, memorize the arrangement of the keyboard both vertically and horizontally, either from the keyboard or from a facsimile. When you have obtained a good mental picture of the position of the characters on the keyboard, you should draw the complete arrangement from memory.

We consider practice work so important in this course that 30 per cent is deducted for each lesson requiring proofs if the work is not submitted.

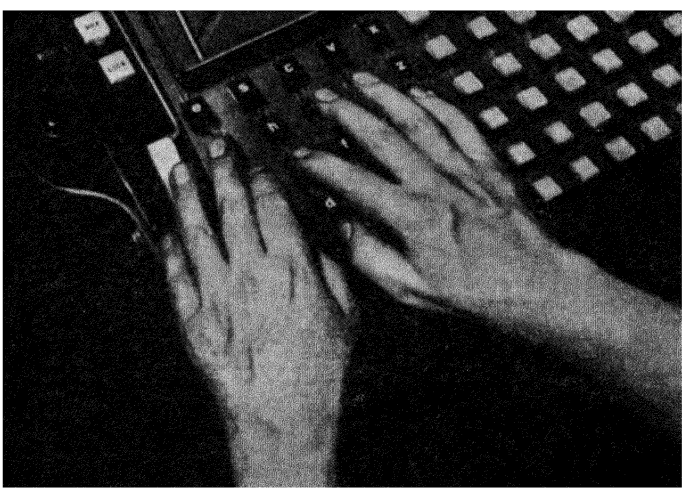


FIG. 3—Basic position of hands.

HOW TO OPERATE THE KEYS

Having learned the location of the characters on the keyboard, the learner is now ready to begin practicing. It is unnecessary to use the complete machine until the fingering exercises have been mastered.

Position at the keyboard. To get the best results, with a minimum of effort, the operator should place himself to the best advantage and in a comfortable chair and position. The body must be in such posture that fatigue is reduced to a minimum. Avoid sloping shoulders and contracted chest. Throw out the chest and maintain deep, natural breathing. Sit erectly at a proper distance from the keyboard. This distance should be gauged by placing the thumbs over the lower row of keys and sitting close enough that the elbows are straight below the shoulders. The arms should not be held away from the body, but relaxed, hanging naturally by the sides. The palm of each hand should be close to the keyboard, with the right wrist near the assembling-elevator shaft, but neither resting upon it nor upon the frame of the keyboard. A position in front of the keyboard should be taken, so that the first two rows of buttons on the left side of the keyboard (e, t, a, o, i, n, and s, h, r, d, l, u) come opposite the center of the body (Fig. 2).

Basic position of the hands. The keys are to be operated without looking at the board; therefore, the hands must assume a fixed relation to the keys, in order that the fingers, without the guidance of the eyes, may unhesitatingly and unerringly touch the key buttons.

Place the left hand over the keyboard so that the second finger rests over the t button and the thumb over the i button. This will bring the first finger over a. Place the right hand so that the thumb comes over l and the first finger over r. The second finger is over the m and the third is over the b. This is the basic position for the hands (Fig. 3). The left hand will never have to travel away from this position for operating key buttons. Whenever the right hand travels to reach remote characters, it can always be rapidly brought back to this position for continued work with the lower-case letters. In this basic position, the hands are far enough apart and the work is so distributed that they do not collide; neither do the fingers interfere with each other.

The work of the fingers. Efficient operating requires that each finger and thumb be trained to do its specific work. Any variation from this procedure will cause erratic fingering.

Designation of the fingers. The small figures over the key buttons indicate the fingers that should be used on the keys (Fig. 4). They are as follows:

0—Thumb
1—Index finger
2—Second finger
3—Third finger
4—Fourth finger

The positive-touch system used in these lessons requires that certain keys shall always be struck by certain fingers, without looking at the keys.

Use the left hand for

s, h, and a—first finger
e and t—second finger
spaceband key—third finger
o, i, and n—thumb

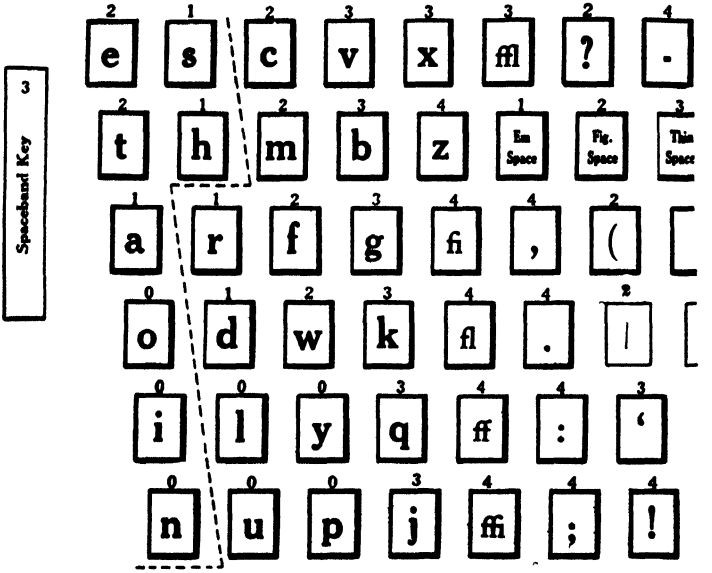


FIG. 4—Keys to the left of dotted line are to be operated by the left hand; the right hand manipulates the rest of the keyboard. O means the thumb.

Use the right hand for

r, d, and em space—first finger
c, m, f, w, interrogation point, figure space, (, and space rule (|)—second finger
v, b, g, k, q, j, x, ffl, apostrophe, and thin space—third finger
z, fi, fl, ff, ffi, comma, period, colon, semicolon, exclamation point, and hyphen—fourth finger
l, u, y, and p—thumb

ASSIGNMENT OF FINGERS TO THE KEYS

This distribution of labor gives to the left hand a small number of keys, but these are the ones most frequently used and comprise fully half of all the strokes in ordinary straight matter. Moreover, they are all in a small area and this hand does not have to travel. The right hand, which is naturally more versatile, does the traveling and operates the less frequently used keys.

The assignment of fingers in using the blue and white keys will be explained in later lessons.

Finger practice. After placing yourself and getting located to the best advantage, begin with the practice of the exercises as assigned. The fingers of the hands should not be widely stretched apart or rigidly stiff. They should be slightly curved. The striking motion should be the motion of the finger from the knuckle, not from the wrist. In other words, the depressing of the key lever should be a finger motion and not a hand motion. The weight of a finger is sufficient to operate a key. The Linotype keys have a hair-trigger touch and the slightest movement of a button will release a matrix. The finger must be removed as quickly as possible, as the keyboard is mechanically operated, and continued holding down of a button causes matrices to drop until the supply in the channel is exhausted. It is therefore imperative that you do not touch a button unless a letter is desired.

As an aid in the earlier exercises, the arrangement showing finger assignment may be placed at the right of the copyholder. In practicing the assigned words, determine from this which fingers are required, and practice each word two or three times, looking at the keyboard if necessary. Then practice each word at least five minutes, without looking at either keyboard or facsimile.

KEYBOARD EXERCISES

The word practice should be on a detached keyboard, or a running machine with the matrices locked in the magazine.

Exercise 1—Use of First and Second Fingers

The following words, or group of words, are found in everyday copy and each should be practiced at least five minutes according to the directions given. Always strike the spaceband key after each word, using the third finger of the left hand.

he	in	not	fact
as	be	one	scarf
for	to	see	tram
are	at	her	farm
the	an	this	what
and	set	that	harm
was	hat	then	match

Exercise 2—Use of Third Fingers

Practice the following words, using the fingers on the keys as prescribed. Do not watch the hands or the keys. Use a slow, even motion. Avoid the use of jerky movements. Steadiness is an important factor in efficient operating; erratic fingering is a strain on the nerves.

rage	wake	back	grave
dark	there	graft	severe
same	shake	extra	brave
came	make	them	serene
	tame	track	

Exercise 3—Use of Thumbs

Do not worry in the beginning about speed; that will come later. Strive to develop uniform and regular movements.

your	world	liquor	proving
brow	quick	yellow	personal
thing	wrong	mutual	merely
when	jump	delving	unjustly

a dark day
the wrong thing
around the world
knowledge of the fact

efficient work
make a mark
catch the game
serve her father

Exercise 4—Use of Fourth Fingers

Strike the keys at all times with the fingers as specified in Fig. 4. It will require effort and practice to train the third and the fourth fingers to work, but when they are properly trained, operating will be easy and rapid.

fine	zebra	export	efficient
fling	flavor	official	extravagant
prize	figure	realize	affinity
finish	suffer	affluent	puzzled

extra fine flavor.
when you realize,
suffer severe pain!

wasted effort:
finish on time;
make right figure.

Exercise 5—Double Letters

Do not hold the key down for double letters; and further, do not slur your fingers across the key buttons. Either of these actions will disturb the smoothness of muscular motion and decrease your speed. Strike each letter in the following words separately:

been	arrest	calling	address
good	lesson	oppose	oppress
flood	pulley	getting	accident
occur	dimmer	meddle	dragging

accident happens
attaining a purpose
calling at this address

getting his lesson
with good feeling
see official figures

Exercise 6—Jumping of Fingers

Cases will be found where it is necessary for a finger to jump from one key to another for successive letters, as in the words in this exercise. Train the fingers to make this jump smoothly and evenly. Do not strike a key with any other finger than the one specified.

join	luring	session	question
first	should	nuptial	luminous
draw	accord	running	lubricate
fizzle	annual	anybody	punishment
jump	stream	purpose	blurring

draw the first prize
the question at issue
at the annual session
should anybody question

Exercise 7—Widely Separated Letters

Some letters in the following words, being widely separated on the keyboard, will require greater hand movement and greater care in touching the desired key correctly. Try to keep an even motion. Avoid spasmodic bursts of speed. Correct habits of operating established by diligent practice will develop speed without undue effort.

next	envy	cancel	advance
cope	print	special	exposure
page	lively	quench	circumflex
park	dizzy	poverty	acknowledge

luxury and extravance
illuminate the park at night
print a special page next week
a lively time at the last session

Exercise 8—Ligatures

Set each of the following words five times. Use the ligatures fi, fl, ff, ffi, and ffl, striking the key buttons with the fingers designated by the chart. Strike the spaceband key after each word.

fine	flirt	offer	affix	raffle
first	flush	differ	office	scuffle
fitted	fling	offend	affirm	affluent
fiscal	fluent	affront	suffice	muffled
finish	flourish	diffuse	affiliate	baffled

SUMMARY

HOW TO BECOME A SUCCESSFUL OPERATOR; HOW TO OPERATE THE KEYS

Aim: To teach the standard keyboard arrangement of a Linotype or an Intertype machine; to teach the proper fingering of the keyboard.

Things to know:

1. The student's future career as an operator depends upon the faithful memorization of the keyboard arrangement.
2. A mental picture of this arrangement should be before him while operating, so that it will not be necessary to look at the keys.
3. The range of vision is from the copy to the assembler slide, thence to the assembling matrices in the assembling elevator.
4. If the operator looks at the keys, he is likely to lose his place, and the evenness of his operating motion will probably be interrupted.
5. The keyboard arrangement is divided into three parts: black, the small letters; white, the capitals; blue, figures, points, spaces, leaders, small capitals, and other characters.
6. There are 90 buttons on the keyboard, laid out in 6 horizontal rows of 15 keys each. The spaceband key on the left makes 91 keys.
7. All letters, fractions, and sorts of all kinds, not included in the arrangement, are found on the sorts board at the right of the keyboard. They are inserted into the assembling elevator by hand and are returned by means of the pi stacker.
8. Ligatures are two or more letters combined on one matrix; as, fi, fl, ff, ffi, ffl. They must be used whenever required in the copy.
9. Various arrangements, where fractions are run into the keyboard, may be seen in printshops and in composing rooms of newspapers. The machinist can cut any letter or character to run into the magazine, provided it is approximately of the same size as the one replaced.
10. The keyboard must have been thoroughly memorized before beginning word practice.
11. The left hand is kept practically stationary; the right hand travels over the keyboard.
12. The fingers should be kept flexed; strike the keys with the balls of the fingers.
13. Slurring of the key buttons interferes with evenness of operating.
14. Note the difference between the hyphen and the em dash, remembering that there is no em dash on the typewriter.
15. The same position should always be assumed before the keyboard.

16. For this lesson, the fingering method (Fig. 4) should be kept on the copyboard, alongside the exercise.
17. The spaceband key should be struck between words, with the third finger of the left hand.

Materials and equipment:

Practice keyboard, pencil, paper, chalk, blackboard, blank chart, fingering chart, and exercises.

Things to do:

1. Memorize the keyboard, taking one section at a time—the black, first; the white, second; the blue, third.
2. Memorize the first row down (e, t, a, o, i, n) by writing it several times on paper.
3. Memorize the second row down in the same manner.
4. Write the first two rows down.
5. Continue these operations until you have memorized the keyboard in downward rows.
6. Then memorize the rows across (e, s, c, v, x, and t, h, m, b, z) until you have them impressed on your memory in that order.
7. Write all the rows, from the bottom up.
8. When you feel confident that you can write the whole keyboard arrangement in three minutes, draw the entire arrangement from memory and keep time on the job.
9. Sit down squarely before the keyboard, the center of the body opposite the first two rows of keys on the left—e, t, a, o, i, n, and s, h, r, d, l, u.
10. Place your hands over the keys in the manner illustrated in this lesson.
11. Strike the keys with the fingers assigned to them by the standard keyboard arrangement, without variation.
12. Practice the following words until you are familiar with the location of the letters involved:

it	none	date	ladies
the	men	rose	shredded
at	hate	read	threaded
thus	tease	their	faces
this	these	road	going
that	those	toad	through
then	note	load	unjustly
ate	into	thereby	query
as	other	thus	our
not	ready	lying	his

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. How many buttons are on the standard keyboard?
2. What color plan is used to designate the sections?
3. Where does the operator obtain sorts?
4. Is it necessary to become a swift?
5. What are the five common ligatures?
6. What finger should be used in striking the e?
7. Should a key lever be depressed by means of a finger motion or a hand motion?
8. What finger is used on the spaceband key?
9. What letters are to be struck by the thumb of the left hand?
10. What does the positive-touch system require?

No proofs required with answers to this lesson.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

 PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 2

HOW TO SET SENTENCES; HOW TO SET STRAIGHT MATTER

THE machine operator must read and comprehend copy faster than the hand compositor, whose hand motions in typesetting impose a leisurely pace for his mental activity. The high-pressure character of the operator's work requires concentration of attention on his copy, in order to grasp its meaning accurately and rapidly. With the keyboard properly memorized, the fingers strike the character as directed by the brain, but if the brain does not correctly interpret the copy, the error in composition may be even more serious than striking an occasional wrong key. Correct comprehension of copy requires keen eyes, deep concentration, knowledge of the rules of grammar, spelling, punctuation, and English composition, and the general intelligence and knowledge that come from a wide range of reading and study. The operator must be alert and on constant lookout for any marks of instruction which may have been placed in the copy. In setting sentences, the flow of thought helps to interpret copy or detect errors in the composition, but when setting proper names, numbers with figures, or involved punctuation, the power of memory must often work abstractly, without the aid of reason or associated thought.

Concentrate and memorize. The power of mental concentration and memory may be improved by more careful attention to the daily reading for pleasure. The cursory reading of newspapers, or the habit of skipping in other reading, will surely militate against mental efficiency. Learn the correct spelling of the names of prominent persons. Practice in repeating sentences after reading them, spelling unusual proper names, or repeating long numbers and series of numbers, after passing them in reading, will be excellent mental training and advantageous to an operator. Cross-word puzzles provide a wide range of words.

Acquire smooth, easy finger motion. In the preceding lesson, the learner has been urged to go slowly and to be deliberate, in order to acquire a smooth, easy motion and to develop such control that the mind, the eyes, and the fingers work in perfect harmony, each performing accurately

its own separate and distinct part. This smooth, easy motion, acquired by using all of the fingers, soon becomes an unconscious habit—the reading of copy, fingering the keyboard, and dropping of the matrices working in unison and with such perfect harmony that a break in the uniformity of this action is instantly detected. To maintain a steadiness of motion, the operator must strike each key distinctly for each letter of the copy. The student operator soon becomes accustomed to the sound of the dropping of matrices in the assembling elevator. Constant, uniform, harmonious action in fingering the keyboard makes for greater efficiency than frantic efforts at speed, without a foundation for correct habits.

In this lesson, diversified practice is provided by sentences that include many of the letters which are seldom used. These sentences contain all or most of the letters of the alphabet and, for that reason, are known as alphabetic sentences. Their composition interferes somewhat with smooth operation, but offers excellent finger practice.

Important assemblage knowledge. The operator should be particularly careful always to use the proper amount of matrices and spacebands in each line which he sets. Lines, too tight to fit easily between the vise jaws, do damage in a great many ways. They usually cause the matrices to be smashed, often damage the first-elevator jaws, and occasionally smash the first-elevator duplex rails. The trouble and expense, however, do not end there. The damaged matrices cause distributor and escapement troubles, with a great loss of production. Lines that are too loose cause damage in two very definite ways: first, if the line is just barely tight enough to cast, the spacing is unsightly; second, the constant sending in of loose lines will soon ruin the matrices by damaging the sidewalls.

In bookwork, the best practice is to use only a spaceband between sentences. A thin space is usually added in newspaper work.

KEYBOARD EXERCISES

Practice each of the following sentences at least five minutes. Set each sentence continuously. During this exercise, the matrices and spacebands may be used. Remove the plunger pin, so that slugs will not be cast. Learning one thing at a time is conducive to speed and accuracy.

Exercise 1—Alphabetic Sentences

He that hath a trade hath an estate.
Diligence is the mother of good luck.
The tortoise was the first efficiency expert.
Concentration is the first condition of success.
The quick brown fox jumps over the lazy dog.
A good worker is worth more than a poor manager.
If you want a thing to succeed, get behind it and push.
Raise your own seed corn and be sure of a crop that is worth tilling.
Sloth makes all things difficult, but industry, all easy.
If the text and the initial are in one color, should they harmonize?
The jazz band included a saxophone and a xylophone among the instruments of their queer outfit.

Dexterity in the vocation of typesetting may be acquired by judicious and zealous work.

The man at the top is the one who has been in the habit of going to the bottom of things.

The average layman has but little idea of the immensity of the field of printing and its importance to modern civilization.

Exercise 2—Punctuation Marks

Look, my lord! It comes!

Ha, ha, ha! That's a good joke.

St. Paul said, "Bear ye one another's burdens."

Read the following: "Matt. i :5, 7, 9; v :1-10; xiv :3, 8, 27."

The American flag has three colors: red, white, and blue.

He said: "I heard him say, 'Put down the gun,' and then I heard a shot."

Write a short essay on the following topic: "What is wrong with our industrial system?"

Farm for sale, rent, or exchange; 400 acres, improved. 24 West Michigan Street, Circle 5930.

Dost thou love life? Then do not squander time, for that is the stuff life is made of!—Franklin.

Franklin, like many others, was a printer; but unlike the others, he was a student, statesman, and publicist as well.

"Breathes there a man with soul so dead,
Who never to himself hath said:
'This is my own, my native land'?"

If we can reduce the labor turnover from 50 per cent to 25 per cent (an accomplishment quite possible by means of group insurance) we shall have a consequent reduction of overhead from $25 to $12.50 per capita.

Sit thou patient looker-on;
Judge not the play before the play be done;
Her plot has many changes; every day
Speaks a new scene. The last act crowns the play.

HOW TO SET STRAIGHT MATTER

Many factors, important in successful keyboard operating, are listed in this, the first lesson on the running machine. Correct fingering of the keys is only a part of the duties of the operator. Some of the most important of these requirements are:

1. A clean machine.
2. An orderly arranged sorts board.
3. Clean proofs.
4. Solid, usable lines.
5. Copy kept clean, in order, returned unsoiled, and not torn.
6. Proper indention of paragraphs.
7. No "blacksmithing."
8. Concentration on the work.
9. Proper interpretation of instructions before starting.

Clean machine. Experts all agree that a clean machine contributes at least 20 per cent to operating efficiency, preserves the operator's nerves, and makes work a pleasure instead of drudgery.

An orderly arranged sorts board. If the time could be estimated, even roughly, in the large office, that is lost by the operators looking all over the place for letters or characters needed that will run pi, the results would be startling. Efficiency engineers are frequently employed by large corporations to effect savings all along the line, and if the operator would only profit by their experiences and keep the sorts board clean and in order, it would not be so hard to get up a productive output for the day's run. The sorts board should be kept in order at all times.

Clean proofs. The most important element in operating the line-casting machine is the setting of clean proofs. Space the lines correctly, divide the words properly, make no omissions, and, in general, see that your output is usable. A foreman will hesitate a long time before discharging an operator if he sets a clean galley of lines, although he may be a little slow.

Solid, usable lines. The fallacy of producing a job consisting of lines with hollow bottoms, cold or battered faces, needs no elaboration here. The careful operator picks up a line now and then and examines it to see that the job is coming along satisfactorily.

Handling of copy. A special effort should be made by the operator to keep the copy clean and return it to the desk unsoiled and intact. The proofreader must read the copy which is usually returned to the author after the proofs are read and corrected.

Indention of paragraphs. Follow the office style or instruction. If neither is available, use 1 em up to 18 picas on the paragraphs; 1½ ems, 18 to 25 picas; 2 ems, 25 to 30 picas. Do not try to imitate the indentions on manuscript or typewritten copy. Always follow typographical style.

Blacksmithing. A term used in the old days to designate the slam-bang type of worker. Slamming the machine, forcing in tight lines, sending in loose ones, and failing to put metal in the pot are some of the characteristics of this worker. When the distributor stops, he jumps up and begins to turn the spirals, without ascertaining the cause of the trouble. Spilling mats on the floor and pulling the control lever when the machine stops automatically are other favorite tricks. In setting a job, he usually sets it the wrong measure, or makes many mistakes, and, when the mistakes are corrected, other errors appear in the lines.

Concentration. Without the ability to sit quietly at the machine and keep his mind on the task before him, the learner would be far better off were he to continue on hand composition, stonework, or design and layout.

Interpretation of instructions. The learner is prone to read over instructions, get a smattering of the contents thereof, and then proceed to do the work about half right. Too much emphasis cannot be placed upon knowing what is wanted before commencing the work.

KEYBOARD EXERCISES

Exercise 3—Setting Straight Matter

Composition, which does not require the use of italic, bold face, small capitals, or capitals, may properly be termed "straight matter." This composition also must be of the same measure throughout.

In setting straight matter of any measure, spacing between the words is the primary consideration. All lines must be uniformly spaced, and if the word will not go in a line or it cannot be properly divided, thin spaces should be inserted between the words, alongside the spacebands. Never send in a loose or a tight line.

Careful attention must be given to divisions of words and to grammatical construction. Pick up a line from the machine galley frequently, observing if the face is right (not hot or cold), and if the bottom of the slug is solid. The careful workman produces a usable product.

Exercise 4—The Linotype Machine

On July 6, 1886, the first Linotype machine was installed in the office of the *New York Tribune*. Since that time, development has reached the point where the Mergenthaler Linotype Company now serves four-fifths of the publishers and printers throughout the world. The Linotype, in fact, may well be called the universal machine, for it is used successfully in 85 countries speaking 56 different languages. At the present time, there are approximately 80,000 Linotype operators and machinists in the United States and Canada; with the owners included, there is practically an army of 100,000 men intimately associated with the machine. Their product goes into almost every home in the land.

The Linotype machine is so constructed as readily to permit the production of many body sizes and numerous Linotype faces. New Linotype faces are continually being designed to meet the demands of the trade. At the present time, the Linotype has a range of faces from 5 to 60 point, and slug length up to 42 picas. The machine produces all kinds of newspaper composition, jobwork, and bookwork, from the simplest to editions de luxe. The skilled operator of today is called upon to lay out and set every kind and class of composition.

Exercise 5—How the Linotype Functions

The Linotype is a machine tool for accomplishing more rapidly the work done formerly by the hand compositor. It is not a typesetting machine, as individual pieces of type are not used in any of its operations. The process consists of assembling brass matrices, or letter molds, from the magazine, into a line, interspersed with spacebands, then sending the line to the casting mechanism, where the face is cast on the top of a bar of metal, producing a finished line or slug, accurately trimmed for height and thickness, and ready for use by the printer.

With the exception of the assembling of the line by the operator and the raising of the assembling elevator, so that it is started on its way, by being carried to the first elevator by the line-delivery carriage, all the actions of the machine are entirely automatic.

The Linotype functions with a rotary motion. That is to say, there is a main shaft, upon which revolve ten cams, each of which performs mechanical operations, in order that the machine may make a full revolution and produce a finished slug.

The main driving wheel, in the center of which is the friction clutch, is driven by an electric motor of one-third horsepower. The clutch, which is fastened to the end of the driving shaft, engages, by means of a small geared pinion, No. 9 cam. Eleven revolutions of the clutch equal one complete revolution of the machine. This clutch consists of a hollow shaft, encircled by a collar, upon the inner end of which is the small pinion, and, on the other end, is the toggle joint, with leather shoes on it, to engage the driving pulley when the machine is in action.

Inside the hollow shaft is the clutch rod, encircling which is a spring. The clutch rod is pinned to the collar by a threaded screw, and to the toggle joint on the other end, in the same manner. The tension on the clutch-rod spring should be 16 pounds, to be correct. This can be tested by a scale. Around the shaft and pinned to it by a screw pin, which can be moved back and forth in a slot, is the collar, through which the machine gets its action in starting and stopping, by allowing the clutch shoes to engage and disengage, by the expansion and contraction of the clutch-rod spring.

When the small roller on the line-delivery shaft pushes the automatic pawl off the upper stopping lever, the forked lever, which actuates the collar, moves to the right along the shaft, allowing the shoes on the toggle joint to engage the inside of the driving wheel, thereby carrying the machine around. After the revolution has been completed, the automatic pawl on No. 10 cam strikes the upper stopping lever which, in turn, forces the vertical lever in; this lever, pushing against the forked lever, forces the collar against the bearing, thus allowing the clutch shoes to disengage, thereby stopping the machine after one full revolution has been made by the machine.

During the movement of the machine, action can be halted by pushing in on the control lever. The automatic safety pawl will stop the machine at the transfer point if, for any reason, the second elevator fails to descend. The vise automatic will also automatically stop the machine if the first elevator fails to go all the way down to the vise head.

The only difference between the Linotype and the Intertype machines is the mechanical construction. Each has its own features, but the product is the same.

SUMMARY

HOW TO SET SENTENCES; HOW TO SET STRAIGHT MATTER

Aim: To teach how to set sentences and how to set straight matter on a running machine.

Things to know:

1. This lesson can be used either on a running machine or on a practice keyboard.
2. To space out at the end of a sentence, alternate with em space, en space, and spaceband, being careful not to have a spaceband on either end of the line.
3. In bookwork, use only a spaceband between sentences. In newspaper work, a thin space is usually added.
4. The learner must be familiar with marks of punctuation and their use.
5. The assembling elevator compares with the stick used in hand composition.
6. The assembler slide moves slowly to the left while the line is assembling until the bell rings.
7. When the bell rings, 2 picas of space remain before the line is filled.
8. If the next word will go into the line, put it in, or divide it, if possible. If it will not go in, or cannot be divided, thinspace the line.
9. Spacebands must not be dropped two together, or placed at either end of the line.
10. Metal must be put into the metal pot at regular intervals. This is very important.
11. If the machine stops for any reason, push in on the control lever, but do not open it until the trouble has been remedied.
12. Accuracy must be the first consideration.
13. Loose lines or tight lines must never be sent into the machine.

Equipment:

A Linotype or an Intertype machine (or practice keyboard in lieu of the machine), copy.

Things to do:

1. Set the exercises given.
2. Do not make errors.
3. Punctuate and capitalize the sentences correctly.
4. Take a proof of the job, read carefully, and mark errors.
5. Clean the spacebands.

6. Clean the plunger.
7. Start the motor.
8. Unlock the keyboard.
9. Check up on the liners, mold, scales, and ejector blade, and be sure that they are all set properly.
10. Read the instructions if any.
11. Analyze the copy and determine the style which is to be followed.
12. Assume the proper position before the keyboard.
13. Place your fingers over the keys in the basic position.
14. Set the exercises furnished with this lesson, but do not submit proofs.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. What method is used for spacing out at the end of a sentence?
2. What damage is caused by lines which are too tight?
3. Should a spaceband be used on either end of a line?
4. What spacing should be used between sentences in a paragraph in bookwork and in newspaper work?
5. How must the operator strike each key?
6. What are at least five important factors in successful keyboard operating?
7. When should metal be put into the metal pot?
8. What should be done if the machine stops?
9. What is a brief definition for blacksmithing?
10. How does the careful operator check up the quality of his product?

No proofs required with answers to this lesson.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 3

HOW TO SET CAPITALS AND FIGURES; HOW TO SET ITALIC AND SMALL CAPITALS

THE arrangement of letters in the capital section on white buttons at the right side of the keyboard is the same as that in the lower-case section on which you practiced in the preceding lesson, with the exception of the last five buttons. The capital section should be operated by the right hand. Use all the fingers and thumb when setting occasional letters or words composed of capitals. Do not carry the left hand from its basic position.

No definite fingers are assigned for each key in the capital section, as in the lower case. However, the same general scheme should be followed, touching the key with the finger which naturally comes over it when the hand is held over the capital section. The E, T, and A should be operated with the first finger.

KEYBOARD EXERCISES

Exercise 1

Set each of the following words in capitals, using the right hand for letters and the third finger of the left hand on the spaceband key between words. Do not watch your fingering or the keys. Use a smooth, regular motion. Practice each word at least five minutes.

TAXI	SHOULDER
HAZE	TANGENT
JURY	WRAPPED
KNOT	THROUGH
THRUST	INTEND
LONG	QUERIES
TWINE	PULLED
FORTY	BIASED

When only one capital is wanted, as in setting a proper name or the first letter of a sentence, the fourth finger should be used for letters in the lower two rows; the third finger for letters in the center two rows; and the second finger for the letters in the upper two rows. This will reduce the travel of the hand to a minimum, both vertically and horizontally.

Always strike the comma and the period with the fourth finger of the right hand.

Exercise 2

Practice each of the following lines at least five minutes.

St. Louis, Mo.
Cincinnati, Ohio
Buffalo, N. Y.
Salt Lake City
American Medical Association
Fall River Line
New York City
British Columbia
Rouses Point
Thursday, January First
Baltimore, Maryland
Montreal, Quebec
John Wanamaker & Co.
Mergenthaler Linotype Company

To set composition consisting of several figures or marks of punctuation, the keys should be operated with the first and second fingers and the thumb of the right hand. Use the thumb on the lower figure keys and all marks of punctuation except those on the top row.

When only one figure or punctuation mark is desired, the comma, period, semicolon, and characters of the lower two rows should be touched with the fourth finger. The third finger should operate the two center rows and the second finger should operate the two upper rows.

Exercise 3

Practice each of the following lines five times, touching the spaceband key with third finger of the left hand at the end of each group of figures or characters corresponding to a word.

138 138 138 138 138 138 138 138 138 138 138 138 138 138
156 156 156 156 156 156 156 156 156 156 156 156 156 156
1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340 1,340
(6,289) (6,289) (6,289) (6,289) (6,289) (6,289) (6,289) (6,289)
$82.50 $82.50 $82.50 $82.50 $82.50 $82.50 $82.50 $82.50 $82.50
7,239 7,239 7,239 7,239 7,239 7,239 7,239 7,239 7,239 7,239 7,239
8:30 8:30 8:30 8:30 8:30 8:30 8:30 8:30
91-72 91-72 91-72 91-72 91-72 91-72 91-72 91-72 91-72 91-72 91-72
(?) $9.45 (?) $9.45 (?) $9.45 (?) $9.45 (?) $9.45 (?) $9.45 (?)
378,992 378,992 378,992 378,992 378,992 378,992 378,992 378,992
739,823 (!) 739,823 (!) 739,823 (!) 739,823 (!) 739,823 (!) 739,823
|846| |9,478| |12,462| |37| |201| |46| |116|

Exercise 4

Practice each of the following sentences ten times. Make sure that you are touching all the lower-case keys with the fingers as prescribed in the preceding lesson. Then proceed with the practice, with your eyes on the copy. Do not look at your fingers.

1. Accuracy must be the first consideration.
2. A discount of 10% was allowed from a bill of $84.00.
3. The net amount to be paid was $75.60.
4. The sum deducted ($8.40) represented a reward for prompt payment.
5. The purchaser thus paid 90/100 of the face of the bill.
6. How long was Harold in school?
7. Detroit, Mich., had a population of 993,739, according to the census of 1920.
8. The seven common marks of punctuation are: the period (.), the comma (,), the semicolon (;), the colon (:), the interrogation point (?), the exclamation point (!), and the apostrophe ('). The space rule (|) is on the button with the small capital (I). The em dash (—) is on the lower right-hand corner of the keyboard. The en dash (–) runs pi.

HOW TO SET ITALIC AND SMALL CAPITALS

Small capitals, being used less frequently than the regular capital and lower-case letters, are placed on matrices the italic characters of which are not used so often. Also matrices are selected for the small capitals which are the proper thickness to give to the letters the right proportion. This, of necessity, causes the small-capital alphabet to be somewhat scattered over the keyboard, but with a little practice, considerable speed in composition can be attained.

Small capitals are obtained by assembling the matrices on the duplex rail, casting them in auxiliary position. The small capitals x and z run pi. These are inserted by hand directly into the assembling elevator, and run down into the pi stacker at the right side of the machine.

In capital and small-capital composition, it is necessary to lower the capitals and punctuation marks to normal position or they will cast italic. Always be sure to lower the comma with small capitals, so it will not cast italic. The matrices should be lowered after the line has been assembled.

A neat display of typographic art in fine printing can often be accomplished by the use of small capitals, or capitals and small capitals combined. They can be used in programs, menus, contents, indexes, subheads, sideheads, and in the text of plays.

An extensive study of the keyboard layout of the small capitals should be made. These letters are seldom used, but this does not excuse the good operator for being unfamiliar with their location on the keyboard.

KEYBOARD EXERCISES

Exercise 5—Italic Practice

Composition involving the use of the duplex rail, for italic or boldface words, requires sufficient practice to enable the student to become proficient. Set the following example, being careful to lower the words that are in roman:

SECTIONAL ADVERTISING FIGURES

Sectional advertising figures are used in the same manner as *ordinary matrices,* and require *no special equipment* on the machine. The *one-letter matrices carry only* one-half a character *on* each matrix; consequently, *two matrices* must be used to produce a *complete character*—one for the upper half and one for the lower half. *The two-letter matrices* carry a complete character on *each matrix,* the upper half in the *auxiliary position* and the *lower half* in the *regular* or *normal position.* In order to obtain the complete character, *two slugs* must be cast. When the *two slugs* are placed together, they form the *two-line character* which makes the whole figure.

The ten-point figures must be cast on *two five-point slugs; the twelve-point figures* must be cast on *two six-point slugs; the eighteen-point figures* must be cast on *two eight-point slugs; and the twenty-four-point figures* must be cast on *two ten-point slugs.*

One-letter sectional advertising figures are furnished to run either as *sorts* or in the *magazines of all models,* according to the sectional figure layout.

Exercise 6—Mixed Lower Case, Small Capitals, and Italic

MRS. GREENWOOD

Yes, mine if you will, but not yours! Not yours! *(Wanly)* Perchance there may be another respite.

BARROW

(Who has been walking up and down) Nay, no more respites. Last month, they had struck off our chains and stood ready to bind us to the cart to take us to our deaths. A reprieve. Another day, they took us to the place of execution and tied the nooses around our necks to the gallows. Again a reprieve. Enough of reprieves! What our words, what our lives could not do, our deaths will. Men pass; ideas abide.

MRS. GREENWOOD

JOHN HENRY, pray! I cannot. Pray that God give me strength.

As her husband comforts her, BARROW *begins praying. Distantly, a bell strikes ten.*

MRS. GREENWOOD

Only seven hours to daybreak! Only seven.

She clings to GREENWOOD, *sobbing hysterically. To the sound of* BARROW'S *half-audible praying, the lights close in.*

THE OPPOSITION—*April, 1602*

The Royal March in this scene was composed by

EDWARD BURLINGAME HILL

The lights come up quickly and full. There is a rush and scurrying of children and the young people across the way.

Submit proof of the foregoing exercise with answers to questions.

Exercise 7—Mixed Lower Case, Capitals, and Small Capitals

The following people appear on the University faculty for the coming term of summer school: HANS H. DALAKER, Ph.D., Associate Professor of Mathematics and Mechanics; JAMES DAVIES, Ph.D., Assistant Professor of German; FRANCES DEL PLAIN, M.A., Instructor in English; HAL DOWNEY, Ph.D., Professor of Histology; RALPH S. DUGALF, B.A., LL.B., Special Lecturer in Americanization; RICHARD M. ELLIOT, Ph.D., Associate Professor of Psychology; MANUEL C. ELMER, Ph.D., Associate Professor of Sociology; HENRY A. ERICKSON, Ph.D., Professor of Physics; GEORGE H. FAIRCLOUGH, F.A.G.O., M.Mus., Instructor in Organ; DONALD N. FERGUSON, Professor of Psychology; WILLIAM L. HART, Ph.D., Associate Professor of Mathematics; LOIS B. HESSLER, Ph.D., Professor of English; BERTHA HINSHOW, M.A., Assistant in History; WILLIAM W. HODSON, B.A., LL.B. (Chief of the Division of Child Welfare Legislation, Russell Sage Foundation) Lecturer in Sociology; C. RUSSELL HOFFER, M.S., Instructor in Sociology; GERTRUDE R. HULL, Instructor in Music; ELIZABETH JACKSON, Ph.D., Assistant Professor of English; ARTHUR M. JOHNSON, Ph.D., Instructor in Botany; BLANCH KENDALL, Instructor in Music; JOHN M. KIERZEK, M.A., Instructor in English; EARLE KILLEEN, Professor of Music; RUTH H. KING, R.N., Lecturer in Sociology; PAUL C. KING, B.A., Instructor in Romance Languages; ALFRED E. KOENING, M.A., Dr. Theol., Special Lecturer in Americanization; HERBERT W. KRIEGER, M.A., Instructor in Americanization; CARNEY LANDIS, M.A., Instructor in Psychology; CHARLES F. LINDSLEY, M.A., Instructor in Public Speaking; HENRY S. LUCAS, Ph.D., Assistant Professor of History.

SUMMARY

HOW TO SET CAPITALS AND FIGURES; HOW TO SET ITALIC AND SMALL CAPITALS

Aim: To teach the setting of capitals and figures, italic and small capitals.

Things to know:

1. The arrangement on the capital side of the keyboard is the same as that of the small letters, with the exception of the last five keys.
2. The two most important of these five keys are the short and (&) and the em dash (—).
3. Three characters appear on the two center buttons, instead of two, to indicate that the commercial and @ and the pound mark (lb) are there for use with bold-face fonts.
4. Lines of capitals require a little more spacing between the words than small letters.
5. This is obtained either by adding thin spaces or allowing the space-bands to pull up a little more in justifying.
6. The Intertype has an extra spaceband key on the capital side.
7. Figures and points are in the center of the keyboard, in the blue section.
8. The duplex rail is used for words set in italic.
9. The first-elevator filling piece is used for a job that is all italic or all bold face and is commonly called flap by operators.
10. Em leaders must be used for em spaces in setting italic or small capitals.
11. On bold-face fonts, the en leader can be used for an en space, but not on the italic fonts.
12. In setting capitals and small capitals, the capitals must be put down off the rails.
13. Lower the comma, exclamation point, colon, and semicolon when setting small capitals.
14. The italic colon runs pi.
15. Matrices should be lowered after the line is assembled.
16. The small capitals x and z run pi.
17. Italic figures will be found on the sorts board.
18. Italic parentheses also are found on the sorts board, as well as the italic ffi and ffl.
19. There are two sections to the duplex rail.

Equipment:

Practice keyboard and exercises for the fingers; Linotype or Intertype machine and copy.

Things to do:

1. Place yourself in the proper position before the keyboard.
2. Set the exercises.
3. Push in on the duplex rails and set Exercise 5, dropping off the rail words in roman.
4. Start the paragraphs with an em leader.
5. Follow the copy.

Precaution:

1. Never use the duplex rail and flap simultaneously, as both have the same mechanical action.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. What is the difference between the capital-letter section and that of the small letters?
2. What are the spaces on the keyboard arrangement?
3. What are the seven common marks of punctuation?
4. What variation in spacing is required of a line of capitals?
5. How is the variation obtained?
6. How are small capitals obtained?
7. For what kinds of work can small capitals, or capitals and small capitals combined, be used?
8. What is used for a job that is all italic or all bold face?
9. Where do the small capitals x and z run?
10. Where are italic figures found?

Submit proof of Exercise 6 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 4

HOW TO RECAST LINES; HOW TO SET DOUBLED-UP COMPOSITION

EVERY printer knows that, by using the machine for recasting purposes, a great saving may be made, both in time and in the use of materials. Leads, slugs, and spacing material are being used daily, all cast on the machine. In addition, borders, rules, dashes, running heads, etc., add to the great wealth of material that can be obtained simply by holding the lever or locking the machine for recasting. The operator should recast lines whenever possible. There is a certain knack in recasting that is only acquired by experience. Care must be taken that the molds are not overheated, and that one line of matrices is not used too long without change. The Linotype is equipped with a water-cooled disk, which aids in cooling the molds, and water should be run through this disk. The Intertype machine has an air-cooling attachment to blow compressed air across the face of the mold. Furthermore, the operator should not allow the machine to run continuously, but should stop it occasionally to allow the mold to cool.

In using the border block, be sure to lock the spaceband transfer before the block is inserted in the first elevator. Unless this is done at first, it may be overlooked until the block attempts to transfer, and this may injure the first elevator.

Use of low mold. A great saving may be made by the use of the low mold, as it furnishes the composing room with a continuous supply of 6-point and 12-point slugs and slugs of other sizes for spacing purposes. This mold casts ribless slugs from 5 to 14 point, inclusive. It can be used on any Linotype. It is only necessary for the operator to turn the mold disk to proper position, and insert in the first-elevator jaws a 30-pica standard matrix-slide block, with a special blank slide which is extra thick, to compensate for difference in thickness of this and standard height molds. This mold requires special right-hand and left-hand liners.

Recasting borders, rules, and dashes. The casting of rules, dashes, borders, and other ornamental or decorative material is accomplished by the use of border slides and blocks or special-border matrices.

The equipment used in casting rule or border slides consists of a block shaped to the exact size of a matrix, and a small brass slide which contains the border or rule design. These blocks are made in lengths varying from 13 picas to 42 picas. The slides are solid or continuous brass molds or matrices and usually extend the entire length of the block. The slides are of brass, and are made as accurately as the single-character matrices. The rule and border designs are punched throughout the entire length of the slide; dashes and braces are punched in the center of the slide. No extra or special parts are required for the use of the slides, except that a matrix-slide block must be provided. The slides are interchangeable in the block and can be substituted one for another at will.

How to cast rule or border slugs. To cast rule or border slugs, place the desired slide in the slide block, and then place the block in the normal position in the first-elevator jaws, below the duplex rails. Lock the spaceband-lever pawl, and turn in the first-elevator-slide recasting block. Then by intermittently pulling out on the starting-and-stopping lever, proceed to recast the required number of slugs. The spaceband-lever pawl must be locked to keep the block from being transferred from the first-elevator jaws. Turning in the recasting block prevents the border block from jumping upward, as the elevator comes to a sudden stop on the full upstroke.

When it is desired to use rule or border slugs to form the outline of a square or rectangle, perfect corners can be made possible by the mitering of the ends of certain slugs at an angle of 45 degrees. Other outline effects can be produced with slugs mitered at other angles (Fig. 1). When casting from a border slide which has a hairline face, it is an advantage to use the quick-drop attachment on the pump lever, because is causes an increase in stress of the pump-lever spring, and gives a very quick casting

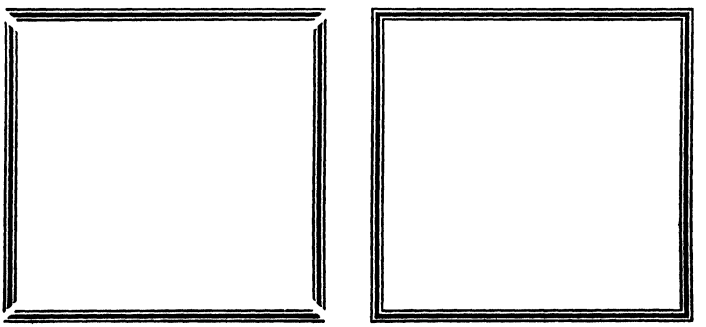


FIG. 1—Showing borders cast from a border slide and block. The first block shows the mitered corners separated. The second shows how they appear when joined together.

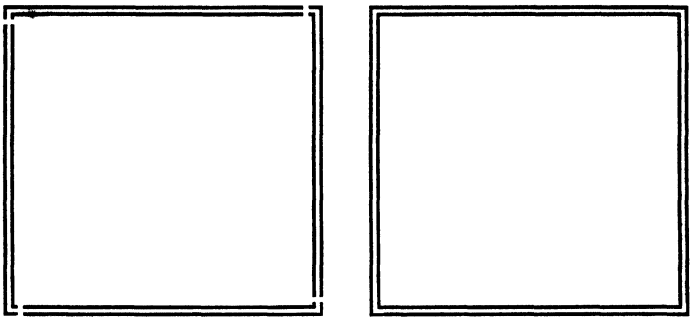


FIG. 2—The above shows a border cast with square corners. This style of border is put together by lapping the corners, as illustrated.

action to the plunger. The effect of this action is to give increased sharpness to the fine face on the slug.

It is possible to cast certain rule faces with a corner at one end of the slug, or at each end. It is absolutely necessary, in making an inclosing border, to have the slug of the same thickness as the body size of the slide used. Thus, a 6-point slide must be cast on a 6-point slug; a 10-point slide must be cast on a 10-point slug; a 12-point slide must be cast on a 12-point slug (Fig. 2).

Matrix slides are made to center the face or design upon the smallest possible body, except in column rules and the like. However, a small face or design may be cast on any thickness of slug larger than the design. Any extra added thickness of the slug will be cast all on one side of the design. Thus, in casting a rule for use under a running head of a book, for instance, the rule slug can be leaded out to any desired space between the rule and text by merely casting the rule on the edge of a thicker slug.

Border matrices are made in many designs and sizes. Each unit or section of a design is cast in a separate matrix, similar to the regular letter matrices of a font. The matrices are all interchangeable in a line and can be used in various combinations, thus producing many border designs and ornaments.

Corner matrices are available with most borders. Frequently, a matrix from some other design will make an appropriate corner for a border, as long as harmony of design is maintained. When a corner-matrix unit is used with repeating border units, the corner matrix is cast on one end of each slug. The slugs are put together with lapped corners, as shown in Fig. 3.

Sizes of border matrices. Border matrices are made in sizes varying from 5½ point to 36 point. They are made in exact pica or nonpareil units; therefore, no spacebands are needed when casting a line, the line automatically spreading the vise jaw to open the pump stop. The matrices may be placed in the assembling elevator and sent in just the same as a

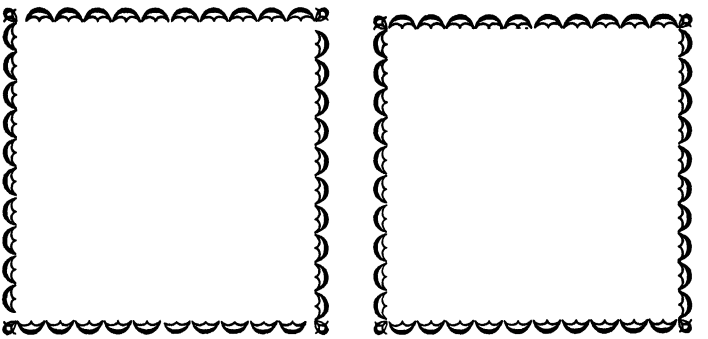


FIG. 3—This shows a border cast from Linotype border matrices, using a corner design. The border is put together by lapping the corners.

regular line, or may be placed directly in the jaws of the first elevator, as is done with the border block. Proceed with the recasting, as when using the border block.

KEYBOARD EXERCISE

Recast each of the following lines twice, according to the font on the machine. If the face carries italic, set the lines of italic, small capitals, and capitals and small capitals. If the face carries bold face, set the lines containing bold face.

Exercise 1

MOTHER *of* JOURNALISM
MOTHER *of* JOURNALISM

Methods of Illustration
Methods of Illustration

THE BATTLEFIELDS OF LIFE
THE BATTLEFIELDS OF LIFE

The History *of the* Printed Page
The History *of the* Printed Page

THE BIRTH OF A MYSTICAL CITY
THE BIRTH OF A MYSTICAL CITY

The Power Behind the Throne
The Power Behind the Throne

GREAT NEWSPAPER CENTERS
GREAT NEWSPAPER CENTERS

GREAT NEWSPAPER CENTERS
GREAT NEWSPAPER CENTERS

The War in Mexico—In his statement to the press yesterday, Mr.
The War in Mexico—In his statement to the press yesterday, Mr.

Submit proof of the foregoing exercise with answers to questions.

HOW TO SET DOUBLED-UP COMPOSITION

The standard machines are made to cast slugs with a maximum length of either 30 picas or 42 picas. Since very little of the usual composition is wider than 42 picas, this wide-measure machine will be found valuable for even the small shop. The majority of composition is less than 30 picas, and this has generally been accepted as the standard machine for ordinary work.

How to set wide matter. To set matter wider than the maximum capacity of any machine, it is necessary to cast each line on two or more slugs. In this manner, matter can be set to any desired measure. Divide the measure to be set by two, or the least multiple which the capacity of the machine will divide into the measure, and the result will be the length of a slug to use. As an example, a job 48 picas should be set on two 24-pica slugs. Set the matter straight across from the first slug to the second, and lay the ends of the slugs together, making one continuous line. The break in the word, coming at the end of the first slug and at the beginning of the second slug, should be made between any letters that will give good spacing. It is not necessary to divide on syllables, for when the slugs are joined, no break in the word will be apparent. Do not break too many lines on even words. Space each line evenly on both slugs.

• The spacing on the first slug and the second slug should be uniform. To obtain this uniformity, it will often be necessary to recast the first slug, because there is no way of predetermining just how the words will be spaced on the second slug until after the first slug has been set. However, it is good practice to hold the line of matrices of the first section in the first elevator, after the cast, until the second section has been set. Then the operator can tell with a reasonable degree of accuracy, judging by the number of spacebands in both sections and the fullness of each line, whether the spacing will be uniform or not. Should there be a difference, matrices, as needed, can be added or removed from the line in the jaws of the first elevator, and the lines recast. By this method, it will never be necessary to reset lines to obtain good spacing. Many operators, however, prefer resetting the lines each time, claiming that this method is faster than holding the lines of matrices.

Slugs must be accurately measured. Before setting doubled-up composition, the slug should be examined, to see that the face does not overhang the end. A shoulder should not appear on the slug outside the face. This would cause a line of white space to show in the composition at the point where the slugs join. The slugs must be accurately measured before starting the doubled-up work. Uneven slugs will cause the lines to show a break in alignment at the joining point.

The slugs must also be the same height at both ends. Uneven height will cause trouble in press makeready, the letter on the end of one slug being higher than the one on the end of the other slug.

The following illustration shows the break, as it appears before the slugs are butted together, but is not to be set by the student, as an exercise in this lesson.

V

In setting doubled-up composition, it i s necessary to take each line out of the stick and lay it in position, as it is set. H owever, it is important that you keep careful count of your place, breaking the word on the end of the first slug and ending the line with a word or syllable on the second slug. Many stunts or devices are employed by operators to help them keep their pla ce. A good method is to lay in the stick a reglet or lead which is longer than th e slug. Move the reglet each four lines. A glance is sufficient to ascertain whether the first-section or second-section slug is being composed.

Before taking the proof to be read, separate the columns of the multiple slugs with a 2-point lead, as in the foregoing paragraph. This will facilitate correcting by showing the break between the slugs. Following is an example of how the lines appear after the two sections have been butted together:

In setting doubled-up composition, it is necessary to take each line out of the stick and lay it in position, as it is set. However, it is important that you keep careful count of your place, breaking the word on the end of the first slug and ending the line with a word or syllable on the second slug. Many stunts or devices are employed by operators to help them keep their place. A good method is to lay in the stick a reglet or lead which is longer than the slug. Move the reglet each four lines. A glance is sufficient to ascertain whether the first-section or second-section slug is being composed.

Stagger method described. The method of setting extra-wide composition, explained previously, is the one most commonly used. However, where the break is continuous in a column, the supercritical eye can detect a small river of white through the center of the page. For an extra-good job, where the slight line of white would be objectionable, the method, as illustrated, commonly called the stagger method, will be found better than the first illustration, thus the following would be set 25 picas:

Much has been written regarding the n ecessity of keeping the Linotype machine in good order to obtain large outpu t, but little has been said regarding the desirability of keeping the operator in g ood health. To secure the maximum output, the operator must be kept in goo d condition, as well as the machine. Most operators do not pay enough a ttention to the laws of health. Fast and accurate work at the Linotype keyboa rd is not simply a matter of knowing how to finger the keys properly, but also , to a certain extent, a question of good physical condition. The amount of m uscular effort required to operate a Linotype is not very great, but it is an occupat ion calling for a clear brain and steady nerves, and anything which promotes th ese conduces to speed and accuracy. Good health is an asset to any Linotype o perator, and the observance of a few

To set a job, as illustrated, it is merely necessary to set the machine measure 6 points wider than the half measure of the job, and drop enough spaces to equal 1 pica on the front of one slug in each pair. The extra spaces should be alternated from one section to the other at frequent intervals. By changing each four or six lines, the continuous break will be eliminated. It is necessary to saw off the extra pica of space from half of the slugs, and bring the two sections together.

When setting extra-wide measure of large faces, 18-point up, it will be found best to dovetail the composition, as heretofore explained, except that the variation should be made on each successive line. On account of the width of the characters on large faces, more uniform spacing can be obtained in this manner because the operator can shift the break to suit the spacing of each particular pair of lines.

A 42-pica machine does away with doubling up of slugs on all measures up to 42 picas in width. This machine also sets all the smaller measures, as well as the longer ones, up to and including 42 picas.

Thirty-five spacebands are required for use on the longer measures. The extra channel of e's also is helpful on the long lines.

KEYBOARD EXERCISE

Set the following exercise 40 picas wide in a 10-point face, being careful about spacing between the words. Use a turned line as a guide on the machine galley, moving it along every three full lines or six half lines.

Exercise 2

YOUNG HAMLET

(By Byron Dexter)

Crandell Ford knew that he was an actor when he was thirteen years old. As a boy, he was tall and gangly; until his voice changed, he sang in the choir of the Snow Hill (Maryland) Episcopal Church. People always smiled when he came down the aisle in his floppy cassock; his long legs were continually threatening to carry him out of the procession, and his head, with its thick hair and large, widespaced eyes, lifted incongruously, almost widely, above the pink cheeks of the other choristers. When he sang, the congregation paid attention and did not laugh.

Crandell came to New York when he was nineteen. By this time, he had an extraordinary voice, ample and resonant; and he possessed his own voice and, with it, the belief that he could act. What makes him interesting is that he was right.

Crandell Ford, unexpectedly, was good tempered and friendly. He was devoted to an aunt in Snow Hill, and after he had come to New York, wrote her long and affectionate letters, telling her of his progress from one manager's office to another's. He had plenty of time for these letters, for he found that the only thing in which producers were interested, when he applied for a job, was the question of his previous experience. Since he could not get a job for lack of experience, and since he could not get experience for lack of a job, Crandell supplemented his income in various ways, such as selling orange juice, ushering at Roxy's, and opening charge accounts. He got some experience in short-lived stock companies in Brooklyn and the Bronx, and more experience in engagements of varying length in Manhattan. The Manhattan engagements took place off the stage. He was accommodating, thoughtful, and polite with women, and very single-minded—characteristics which made him both popular and something of an enigma.

Crandell celebrated his twenty-first birthday by eating a cinnamon bun and drinking a cup of coffee at noon in a dairy lunch on Broadway. He was tolerably happy. Why not? He was still in New York.

Submit proof of the foregoing exercise with answers to questions.

SUMMARY

HOW TO RECAST LINES; HOW TO SET DOUBLED-UP COMPOSITION

Aim: To teach how to recast on the Linotype and the Intertype and how to set doubled-up machine composition.

Things to know:

1. The line can be recast in three positions:
   (a) In normal position.
   (b) With part of line on duplex rails.
   (c) Using the flap.
2. The recasting block is under the first elevator.
3. The machine must not be unlocked while it is in motion.
4. The transfer lock is on top of the spaceband box.
5. Recasting must not be done too continuously.
6. A line must not be recast too many times. Change it occasionally.
7. Careful watch must be kept on the metal pot.
8. Always open the vise while putting in and taking out the border block or while changing slides.
9. Doubled-up composition is used when the measure is more than 30 picas, and sometimes for variable columns.
10. The 42-pica machine obviates the necessity of setting doubled-up lines, up to its capacity.
11. The knives must be carefully set before starting a job of this character.
12. No hang-over should appear on either end of the line.
13. Avoid too many breaks at the ends of words.
14. Use blank slugs to fill out short-line paragraphs.
15. The composition can be doubled up frequently to be sure the job is coming along all right.
16. Micrometry of the slugs before starting is assurance of having a good join in the columns.

Equipment:

Linotype or Intertype, border block and slides, low-slug mold, pica gauge, copy, and marker.

Things to do:

1. Check up on the machine.
2. Lock transfer when recasting line in normal position.

3. Lock transfer and push over the recasting block for a line partly raised.
4. Use the flap when setting and recasting a line all italic or all bold, but don't use the duplex rails in assembling it.
5. Examine the slugs on the machine, measuring with a micrometer, to see that they are true on both ends.
6. See that there is no overhang on either end of the line.
7. Check up on the setting of the machine.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. Where is the recasting block?
2. How is the casting of rules, dashes, border, and other ornamental or decorative material accomplished?
3. How is the metal kept at the proper temperature while recasting?
4. In what ways can a line be recast?
5. In what sizes are border matrices made?
6. What will uneven slugs cause in doubled-up composition?
7. For what is doubled-up composition generally used?
8. What should be used to fill out short-line paragraphs?
9. How many spacebands are used on the longer measures?
10. On how many slugs should a 48-pica line be set?

Submit proofs of Exercises 1 and 2 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 5

HOW TO SET POETRY; HOW TO SET MENUS

POETRY affords the printer a definite opportunity to aid the reader in comprehending the subtle or mystic thought contained therein. The poet expresses his ideas in language that implies or connotes "between the lines," as it were, meanings that the actual words cannot convey, without the aid of imagination on the part of the reader, and his imagination may be stimulated or quickened by the printer's devices for emphasizing or attracting his attention.

The rhythm of the poem is brought out by the separate lines of definite poetic rather than linear measure, and the alternation necessary, as a part of this rhythm, is expressed by varying the indentions of alternating lines.

The indention of lines of poetry is sometimes a puzzling matter for the inexperienced operator unless he is given printed copy or carefully prepared manuscript in which the line indentions are clearly indicated. There are a few rules which govern the subject, and even these are sometimes ignored in practice.

How to indent all lines. If the assembling elevator will accommodate each line of verse, the composition will be very much simplified. The first consideration will be to indent all lines so that the general body of the poem will appear approximately in the middle of the page or column. When the lines vary greatly in length, some calculation is needed to get the right indention, without going over them the second time. The average line should be set first and the indention of the others made to accord with this. In this case, some lines will be set a little to the left of the column, and others will be set a little to the right.

Indention of poetry is made with em spaces. The variations in indention are also graduated by ems, usually one em, but sometimes two, three, or more ems, according to the relative length of the lines and the size of the face used.

Lines which rhyme with each other are always indented the same. One of the commonest forms of verse is that in which the rhyme is in the alternating lines, or the second and fourth lines. In this case, the second line

of each is indented one em beyond the first. If the lines are long and the type is small, the indentions may be two ems.

In many cases, however, rhymes like these are set without varying the indention, to conform to the typographical effect of some other part of a job. When the rhyme follows at certain intervals, the rhyming lines are indented alike.

Blank verse. In blank verse, the indention of lines is uniform, the only consideration being to indent the lines so that the general group will seem to be centered on the page.

A uniform indention is given to poems in which the rhyme is in the two adjoining lines. When a stanza ends with one short line or more than one short line, having no direct rhyme connection with preceding lines, indent so that appearance is in the center of the body mass.

Overrunning lines. When a line is too long to go into the page width, the surplus words are carried over to the next line. To avoid confusion, this run-over is indented differently from the beginning of a regular line commencing with a capital, usually two ems more than any other indention.

Center the poem. If the machine operator is permitted to use his discretion in setting poetry, he should regulate the length of lines and indentions so that lines will not run over into extra lines unnecessarily. When the measure is narrow, however, it is better to run over an occasional long line than to place the whole poem out of center on the page.

Running title. This is one line in a page of poetry that cannot be changed with safety; neither it nor the folio at the end of the line should be moved either to the right or to the left, to make the body of an irregularly indented mass of poetry seem to be in the center of the page. The folios are often the only safe guide the pressman has in making his register when he prints the sheet on the reverse side. If the folios are out place, it is probable that the pages will be out of register.

Quotation marks in lines of poetry. In all stanzas, put the quotation marks in the space made by indention, so that first letters of each verse will align vertically, as they would align if the quotes were not used. Do not allow the quotation marks to make irregular vertical lining of capitals. The quotation marks are not integral parts of the sentence, and when they are treated as if they were, the intent of the rhyming indention is obscure.

Setting poetry consisting of short lines. Much time can be saved by setting the machine measure shorter when setting a very short poem on a comparatively long slug. First, center the average line to find the correct indention, then measure the indention in picas. Set the assembler slide and the left vise jaw to the indention desired. The vise jaw will automatically blank out the first part of the line.

KEYBOARD EXERCISES

Exercise 1—Poem with Alternating Indentions

LEADS AND SLUGS

Of course we're only dirty snipes,
  But when we get our orders,
We mingle with the stylish types
  And "hobnob" with the borders.
We're mostly there without much grace;
  Ah! that's the awful rub;
To feel we simply fill up space
  For everyone to snub.
But why should handsome borders thrive
  And types live on their face,
While we the leads and slugs but strive
  To understand our place?
It really seems to be a sin,
  That they the credit "gob";
For often when you "stick us in,"
  We nearly make the job.

—JOHN W. COOPER.

Submit proof of the foregoing poem with answers to questions.

Exercise 2—Uniform Indention of a Poem

REMINISCENCES

Do you remember in days long gone by
The bodkin, turtle, and hellbox of pi,
The old soapstone, where washed one and all,
And the old towel that hung on the wall?
Does mind wander back to printshop of old
When chairmen were men, both fearless and bold;
Who fought for us all, stood out for the right,
Were peaceful, yet always ready to fight?
Do you recall when editions were gone,
Our aprons hung up and our street clothes on,
We'd cash in our string and then join the band
And quaff a few mugs at the Bell-in-Hand?
Those happy-go-lucky old printshop days
Have gone by the board for more modern ways;
Yet mem'ry's pages hold thoughts of this kind
Of days you and I have left far behind.

—G. G. HALL.

Exercise 3—Another Style of Poetry

MAKING IT SNAPPY

If you have a thing to say,
  Cut it down!
Something you must write today,
  Cut it down!
Let your words be short and few,
Aim to make them clear and true,
Monosyllables will do.
  Cut it down!
Are you writing to the press?
  Cut it down!
Make it even half or less,
  Cut it down!
Editors like pithy prose,
Lengthy letters are their foes,
Take a hint from one who knows,
  Cut it down!

—GRENVILE KLEISER, in the *Paris Herold*.

HOW TO SET MENUS

Menus furnish a source of revenue for the printer, especially in the larger cities. Printshops in Chicago, San Francisco, New Orleans, New York, and other large cities specialize in printing menus and, frequently, ads that appear in the papers call for an operator "familiar with menus." In setting this class of composition, particular attention must be paid to the arrangement of groups and to indentions.

Capitals and lower case, capitals and small capitals, even small capitals, and sometimes capitals of smaller type faces are used in the composition of luncheon menus. It appears that the simpler they are, the neater is the typographical appearance. The owner of the small shop, with a limited equipment, finds this field a profitable one.

Menus may be set in block form; that is, with the same indention on both sides of the lines, or in an oval form, where the composition is shaped artistically, using centered lines and inverted pyramids.

Like items must be kept in their respective groups and, if possible, on the same line. Indentions must be kept uniform. The word "menu" should always be set in a type face larger than that used for the body of the job.

Leaders are not used in menus. Only bills of fare contain leaders, and they are printed for the cheaper class of restaurants. The club menu is the most popular, and must be set so that the arrangement will be flexible and can be changed from day to day.

KEYBOARD EXERCISES

Exercise 4

Set this exercise in capitals and small capitals, following the style indicated.

MENU

BANANAS APPLES

OATMEAL CREAM OF WHEAT FORCE

GRAPE NUTS CORN FLAKES

CHOICE OF

SMALL STEAK HAM BACON LAKE TROUT

FRIED EGG BOILED OR SCRAMBLED

POTATOES

BAKED FRENCH FRIED SAUTE

WHEAT CAKES

ROLLS TOAST

COFFEE TEA MILK

Exercise 5

This example illustrates the oval style of menu. Uniform indentions are required.

Menu

Oysters Clams

Barley Soup Chicken Soup

Olives Radishes Celery

Caviar on Toast

Roast Virginia Ham

Asparagus Tips New Peas

Apple Pie Cup Custard

Strawberry Ice Cream

Demi-tasse

Exercise 6

The block or square form of menu is used in tea rooms and clubs. Follow this style.

MENU

Grape Fruit Cocktail — Oyster Cocktail

Green Pea Soup — Tomato Soup

Celery — Olives — Radishes

Southern Fried Chicken

Creamed Mushrooms

String Beans — French Peas

Sweet Potatoes

Peach Pie — French Pastry

Neapolitan Ice Cream

Coffee

Exercise 7

Menu: Little-neck Clams; Barley Soup; Chicken Soup; Olives, Radishes, Celery; Caviar on Toast; Roast Virginia Ham; Asparagus Tips, New Peas, Grilled Sweet Potatoes; Apple Pie, Cup Custard, Strawberry Ice Cream; Demi-tasse.

Using the above copy, set the menu, in any one of the three styles previously shown. Submit proof with answers to questions.

SUMMARY

HOW TO SET POETRY; HOW TO SET MENUS

Aim: To teach how to set poetry and menus.

Things to know:

1. All rhyming lines must be indented the same.
2. Indentions on lines of poetry must be made with em spaces.
3. All poems must be set so as to appear in the center of the column.
4. In blank verse, the indention of lines is uniform.
5. Quotation marks go in the margin made by the indention.
6. The vise jaw can be used for indenting poetry consisting of short lines.
7. A blank slug is inserted between stanzas.
8. Menus are used in hotels, restaurants, and clubs all over the world.
9. A well-arranged menu adds to the attractiveness of the service.
10. Menus may be set up in capitals and lower case, even small capitals, capitals and small capitals, and, in some instances, in capitals of the smaller type faces.
11. Uniform indentions must be followed throughout.
12. The style of composition may be in block form or in oval form.
13. Items of like character should be grouped together.
14. The word "menu" should be set in a larger face than the body.

Equipment:

Linotype or Intertype, copy, and pica gauge.

Things to do:

1. Pick out the average longest line in the poem and center it on the slug.
2. The number of em spaces used on the left side of the line will be the flush indention.
3. Set the alternating lines with 1 more em space of indention.
4. Ordinarily, set all run-overs with an additional 2-em space of indention.
5. Set the exercises given, being careful to observe instructions and not to follow reprint blindly.
6. Decide upon the style to be followed.
7. Check up the machine and see that it is set properly.

Precaution:

1. Be careful, in using the vise jaw, to see that the scale coincides with the scale on the assembler slide, and that the measure is properly set when through indenting.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. How is the rhythm of a poem brought out?
2. What is the first consideration in the setting of a poem?
3. What can be used for indenting poetry consisting of short lines?
4. With what are indentions in lines of poetry made?
5. Should the quotation marks align with the capitals? Why?
6. Where are menus used?
7. Name the different styles in which menus may be set.
8. What should be done with items of like character?
9. Are leaders used in menus or in bills of fare?
10. What can be used in setting a menu?

Submit proofs of Exercises 1 and 7 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 6

HOW TO SET AND USE INITIAL LETTERS; HOW TO LINE UP ROMAN NUMERALS; HOW TO SET BRACES

IT IS frequently desirable to embellish certain pieces of composition with initial letters. Many styles of these initials are available to the present-day typographer, and any of them can be used with machine composition. Four kinds of initials are commonly used: foundry-cast type or decorative letters, electrotype decorative initials, in either one-color or two-color units, machine-cast characters of the various display sizes to be cut in, and, in many fonts, initials cast to overhang from machine slugs.

Much study and thought are required for the proper use of initials. They must be made to look as though they are a part of the matter which they complement—not as an afterthought. A page often may be made a pleasing piece of work by the addition of the right initial. It may be utterly defaced, also, by the selection of an improper initial.

Selection of initial letter. The selection of an initial letter often requires careful study and exercise of the best taste. If a fancy initial is used, it should be of a design appropriate to the matter set, and must also harmonize with the face used for the text. A heavy, bold character of elaborate design should not be chosen to go with a plain, light-face letter. On the other hand, a light-face, plain initial would not harmonize with a page of bold-face or fancy-face characters. It is in good taste to use an initial of a larger size of the same family as that in which the text is set. Care must be taken not to use a modern letter for an initial with an old-style face, or an oldstyle with a modern.

Usually, capitals should be used for the first few letters or words immediately following the initial, and the initial should extend from the top of the capital line to the bottom of the face of the final aligning slug used in immediate association with the initial. Very frequently, small capitals, instead of capitals, may be used for the first few letters or words. When the paragraph begins with a proper name (as, for example, the name of a person, corporation, or society), the entire name is set in capitals or small capitals.

The white space on the side and at the bottom of the initial should be uniform and not too wide; otherwise, the entire effect will be spoiled. A general custom is to set the first line flush against the initial, and drop an extra en space for the succeeding lines. However, the space below the initial should govern that at the side.

When using the letters F, T, P, V, W, or Y as initials, the type may properly be run flush against the letters, because of the shoulders, which allow sufficient white space between the faces of the initials and the adjacent characters. This depends, however, somewhat upon the style of the letter used, to get a proper typographical effect.

Mortising of initials. As there would be a wide gap between the letters A and L, when used as initials, and the remainder of the letters forming the first word of the paragraph, it is necessary to mortise these letters, to allow the second letter of the first word to set close to the initial unless the initial is to go in color. It is likewise necessary to mortise other letters in some fonts; as, B and R and letters where the top alignment is considerably to the left of the bottom alignment. Avoid, when possible, the use of the initial A as a separate word. However, when so used, it is not necessary to mortise. Capitalize the second word, and let it run flush against the initial body.

Foundry-cast initials, having a shoulder of white at the side of the letter, should be sawed down as closely to the face as possible. Likewise, it is necessary to saw off the bottom shoulder, so the initial will fit in the line space and align with the bottom of the face in the text which comes opposite to it. Initials having a serif on the left, which projects past the body of the letter, should be undersawed, allowing the serif to project a little into the margin of the page, in order to avoid the appearance of the initial being indented. Likewise, letters having a rounded side on the left should be undersawed to make them fit properly.

How to put initial letters in machine composition. In order to put initial letters in machine composition, it is necessary for the operator to put enough blank space on the slug, so that it can be sawed off and the initial inserted. This is accomplished by putting in sufficient em and en spaces to equal the thickness of the initial to be inserted. In case the regular em and en or thin spaces cannot be made to equal the thickness of the initial, use hair spaces or one of the letter matrices from the magazine to get the desired blank space. By trying various matrices, you will find almost any thickness desired. These matrices should be placed at the beginning of the line, so the character will be cut off the slug by the saw when the initial is being cut in.

Use of an initial chart. In the composing room, where successive issues of a publication are produced on the machine, it is a good plan to determine the width of each initial in the series and to print the results on small cards. There are two good features about the use of such cards by the operator: Time is saved by rendering it unnecessary for him to measure the width of an initial each time it is to be used, and the initial font of

hand type will not run low because many letters are out on the various machines.

Initial Chart Illustrated

A—First line—em and en
Second and third lines—3 ems
B—Two ems and thin
Two ems, en, and thin
C—One em, en, thin, and t
Two ems, thin, and t
D—Two ems and r
Two ems, en, and r
E—Two ems and thin
Two ems, en, and thin
F—One em, en, thin, and fi
Second and third lines, same

A—First line—em and en
Second and third lines—3 ems
B—Two ems and thin
Two ems, en, and thin
C—Two ems and a hair
Two ems, en, and a hair
D—Two ems, thin, and a hair
Two ems, en, thin, and a hair
E—Two ems and thin
Two ems, en, and thin
F—Two ems and a hair
Second and third lines, same

Two charts are shown as examples, one where em, en, and hair spaces are used, and the other showing the use of various letters to obtain the proportion of space to be allowed for the initials. The examples shown were used with 10-point Century Expanded, with an appropriate 3-line initial.

When sawing or cutting the slugs to insert the initial, place the initial in the gauge with the slugs, butting the slugs snugly against the initial. This will insure exact justification.

The 2-line overhang initial can be cast directly on the slugs. An advertising figure mold should be used. The initial should be cast on the first slug, and the trimming knives opened to permit the initial to pass without being trimmed. The second line should then be indented to allow the proper white space at the side of the letter. The shoulder on the second line forms a support for the overhanging initial.

The initial matrix usually must be cast in auxiliary position. When the same space is desired on the second slug as is used on the first, merely use the initial again, dropping it down to normal position, or, in some cases, reverse the matrix and take it off the second elevator bar after transfer.

KEYBOARD EXERCISES

Exercise 1

AUSED as a separate or complete word need not be mortised. The second and third lines should align with the first line. Being a complete word in itself, the extra white space on the top of the letter gives space between the two words.

ANOTHER TREATMENT of the letter A is required when a type initial is used as a part of the first word. In this case, it should be mortised so the second letter will be near the body of the initial. If the letter is not mortised, the white space at the top is too conspicuous for artistic printing.

LOOK at the initial which starts this paragraph. It can easily be seen that a careful mortise is necessary to bring out the proper typographical effect. The first line is cut into the body of the letter, in order to eliminate the white space.

THE 2-line initial gives the conventional note of accent at the beginning of an article or important subdivision of copy. It is the form most commonly used for straight matter. The 3-line initial is used when further emphasis is desired. Note that the first and second lines are indented the same.

THE raised initial, followed by capitals or small capitals, is an alternative to the 2-line or 3-line initial, its use being governed by the general character of the page. This style of letter is commonly called the "uptending" initial. Note that the lower part of the initial aligns with the lower capital alignment of the first line.

Submit proof of the foregoing exercise with answers to questions.

HOW TO LINE UP ROMAN NUMERALS

The task of lining up roman numerals, at the beginning of lines, may appear to some as difficult, but it is easy on the machine, once the method of procedure is clearly understood. First, determine just how high the numerals are to run, or how many different letters are to be used in combination, and then set the assembler slide, line-delivery slide, and the left vise jaw wide enough to accommodate the total number of individual numerals or letters to be used at the beginning of the line. Then add sufficient em spaces—not spacebands—to bring the widest set of roman numerals or letters to the desired indention on the slug. Use the same number of em spaces in each line. As the "extra" matrices assembled at the beginning of each line will be out beyond the opening in the mold, they will not cast, and so the slugs will not require trimming. The right-hand side of the letters will be in perfect alignment because the same letters and quads are actually in each line in front of the lineup, merely being left off the slug when the cast is made.

Some operators follow the practice of reversing the extra matrices at the beginning of such lines; that is, turning them around, casting edge away from the mold, with the assembler slide, line-delivery slide, and the left vise jaw set to the same width as the mold, and lifting the reversed matrices from the second elevator. But the procedure explained above is much more efficient.

If the roman numerals in a given job are run up to XXX, the total number of individual numerals to be used in the job will be three I's, one V, and two X's: IIIVXX. And various combinations of these numerals must be assembled at the beginning of each line of such matter to be set. Example:

I A Tale of Two Cities.
II The Old Man of the Sea.
III The Speckled Band.
IV Romance of the Rockies.
V May Goes Modernistic.
XXVIII Main Street Sketches.

Set the line with the most numerals in it as a guide (XXVIII). Let the jaws out 3 picas beyond the measure. Put all the numerals in at the beginning of the line. Run down enough em and en spaces to align the last capital I on the slug with that on the guide. Transpose this I, followed by a figure space, over alongside the title, thus:

Guide line—

XXVIII Main Street Sketches.

Second line—

XXVII I A Tale of Two Cities.

The XXVII, being out beyond the end of the liner, is automatically cut off from casting. It may require one line or more than one line to align the capital I on the last slug with the first, but once the required spaces are ascertained, they must be used in successive lines. Follow this method in setting the remaining lines.

KEYBOARD EXERCISES

Exercise 2

Submit proof of the foregoing exercise with answers to questions.

Exercise 3

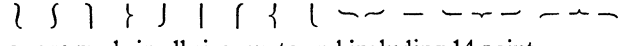
X	Eli Whitney & Co	$13,400
A	Jameson, P. W	11,234
CD	Kelley, Frank F	14,327
ABX	Quebec, Henry	14,980
E	Lattimer and Brown	23,546

HOW TO SET BRACES

Braces, in printing, are used to connect two or more lines, or groups of subjects, under a single head. Usually, the lines are one under the other, the braces running vertically. It is also noted that braces are used horizontally, embracing a group of subjects. Braces are used most frequently in legal documents, real-estate contracts, technical books, mathematics, and printed surveys, not mentioning the various uses in thousands of office forms.

It might be well to add that music employs more braces than most other printed work, but they are usually hand drawn. Vertical braces face either left or right; horizontal braces point up or down.

In the majority of cases, type composition including braces may be set on the linecasting machine. It is very essential that the machine compositor have a comprehensive knowledge of typography, so that he will know how much of his particular assignment rests with him entirely and how much of the job the hand compositor has to do, after the completion of machine composition. A complete set of piece braces consists of the following characters:



They are made in all sizes up to and including 14 point.

Below are three example lengths of matrix-slide horizontal braces:

By using various combinations of the brace matrices, any desired length of brace may be made, facing either direction. For vertical-brace work, one section is cast on each slug, in proper alignment, so they join when the slugs are assembled. The horizontal braces are cast on one slug to the desired length and placed in the form as a separate unit.

The two-piece brace is made from two matrices which cast characters like these ⎧ ⎫ for vertical work. The same two matrices will make a brace facing either right or left. To make a two-piece brace facing to the left, take the matrix the top curve of which turns to the right; cast this on the first slug and the result will be like this:

1491 Lorrisey Siding ⎧

Assemble the matrices for the next line and drop the brace matrix in at a point corresponding to that occupied by the brace matrix in the first line and, when the slug is cast, it will appear like this:

1493 to Fairport Harbor.....Ohio⎫

When the two slugs are brought together, the perfect brace is formed with the open side to the right:

1491 Lorrisey Siding ⎧
1493 to Fairport Harbor.....Ohio⎫

To make a brace facing to the left, reverse the process as previously explained, using the second matrix on the first slug and the first matrix on the second slug.

To make a brace covering an odd number of lines (three or more) requires the use of brace characters on each slug as follows:

⎧ on the first slug
⎨ on the second slug
⎩ on the third slug

When these slugs are assembled, a brace is formed, as shown below:

⎧ on the first slug
⎨ on the second slug
⎩ on the third slug

If the brace is to be extended over five or more lines, add the straight vertical-brace character following the first line and preceding the last line.

To make a brace covering an even number of lines (four or more) requires the use of brace characters on each slug as follows:

⎧ on the first slug
⎪ on the second slug
⎪ on the third slug
⎩ on the fourth slug

When these slugs are assembled, a brace is formed, as shown below:

⎧ on the first slug
⎪ on the second slug
⎪ on the third slug
⎩ on the fourth slug

If the brace is to be extended over six or more lines, merely add the straight vertical-brace character following the first and preceding the last line.

In case three or more sections of brace lines are desired, as follows:

Peach Bloom } her attendant..... { Martha Doris Michaelis
Mouse Ear } { Miss Sylvia Levey

Set the first two lines separately, taking the words out of the assembling elevator, laying them on a slug and lining them up with the necessary spaces to make them equal in length to the brace included. Then fill the lines with spacebands and em spaces.

Peach Bloom }
Mouse Ear }

Set the second section flush to the left, and leader out, as illustrated:

her attendant.....

Set the last two lines, with braces flush against left-hand vise jaw, and space out the line.

{Martha Doris Michaelis
{Miss Sylvia Levey

Saw or cut the first section to the length which will include brace characters. Saw the third section close to the last letter of the longest line. Set the saw to the full measure of the job, place the first and third sections against the gauge, and saw the center slug to fill the measure. It will then be necessary to place leads or slugs on each side of the center section to center the line on the brace.

KEYBOARD EXERCISES

Exercise 4

MATERIAL	TO	RATES
Gravel, carloads, minimum weight 40,000 pounds.....	Cleveland, O.	.50
	Newburg, O.	.50
	Mansfield, O.	.50
	Wheeling, W. Va.	.45
	Rittman, O.	.60
Gravel, carloads, minimum weight 50,000 pounds, except where the marked capacity of the car is less, in which case the marked capacity of the car will be the minimum weight	Akron, O.	.75
	Burton, O.	.40
	Cleveland, O.	.40
	Cuyahoga Falls, O.	.30
	Kent, O.	.20
	Middlefield, O.	.70
	Newburg, O.	.60
	Newcastle, Pa.	.40
	Niles, Va.	.80
	Wheeling, W. Va.	.45
	Warren, O.	.30
Sand, carloads, minimum weight 40,000 pounds, except where the marked capacity of the car is less, in which case the marked capacity of the car will be the minimum weight..	Cleveland, O.	.40
	Strongville, O.	.50
	Massillon, O.	.60
	Autman, O.	.40
	Dayton, O.	.60
	Canton, O.	.30
	Midvale, O.	.20
	Parral, O.	.40
	Elyria, O.	.20

Submit proof of the foregoing exercise with answers to questions.

SUMMARY

HOW TO SET AND USE INITIAL LETTERS; HOW TO LINE UP ROMAN NUMERALS; HOW TO SET BRACES

Aim: To teach how to set composition involving the use of initial letters, how to line up roman numerals, and how to set braces.

Things to know:

1. Select initials that will line both top and bottom with the text.
2. Use a larger face of the same family of type if possible.
3. The knife must be opened to the width of the initial, in using matrix initials.
4. On letters like A and L, indention must follow contour of the initial.
5. Careful measurement is required for cut-in initials.
6. Capitals are generally used for the remainder of the first word after the initial.
7. In some publications, small capitals are used for this purpose. Follow the style.
8. Use modern initials with a modern face, oldstyle with an oldstyle face.
9. In setting large block initials, the indention may be accomplished by using the vise jaw after the first line is set.
10. Letters, such as T, P, and F, require no additional indention in lines following the first.
11. Roman numerals, unlike regular figures, are not made on a unit body.
12. In order to align roman numerals in a column, it is necessary to use the method described in the lesson or turn those not used backward and take them off the second elevator after each line is cast.
13. The method prescribed furnishes the quickest and easiest way of accomplishing the task.
14. The capital X and capital V are the same size.
15. The line with the most roman numerals in it should be set first and kept as a guide for succeeding lines.
16. The same number of em spaces must be used in each line.
17. In opening the measure, allow about 3 picas more than the length of a liner.
18. Braces are used to form connections between groups of words.
19. They are made in two forms, vertical and horizontal.
20. They are also made on slides of various length.

21. Usually, they are on an en body; that is, they occupy the same space as the figure space.
22. By using various combinations of brace matrices, any desired length of brace may be made, facing in either direction or up or down.
23. For vertical-brace work, one section is cast on each slug.
24. Horizontal braces are used principally in heads over columns.

Equipment:

Linotype or Intertype, machine initials, hand initials, pica gauge, braces, and copy.

Things to do:

1. Select the initial to be used.
2. Measure it with machine ems.
3. If it is a machine initial (matrix), open the knife to the width of the initial.
4. If it is a hand initial, to be cut in, allow the proper amount of space for it.
5. Set the line with the most roman numerals in it first. (This will be the guide.)
6. Open the jaws 3 picas beyond the measure.
7. Set the largest number of roman numerals in the next line, allow about 3 ems and an en space, and place I a figure space from the text.
8. Cast this line, and see if the first I in the first line aligns with the first I in the second line.
9. If it does, then 3 ems and an en space are to be placed in each line after the full set of roman numerals has been set in the line.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. What should be done with letters A and L when used as initials?
2. Why should the same family of type be used for the initial?
3. Why should the knife be opened for a large initial?
4. Which line of roman numerals should be set first?
5. Should em spaces or spacebands be added to bring the widest set of roman numerals or letters to the desired indention on the slug?
6. Which parts of the machine must be set before operating starts?
7. For what are braces used?
8. In what forms are they made?
9. On what size of body are they usually made?
10. How are they cast for vertical-brace work?

Submit proofs of Exercises 1, 2, and 4 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 7

HOW TO SET CATALOG PAGES; HOW TO RUN AROUND CUTS

THIS class of composition requires all the skill possessed by the craftsman, meaning that the operator must be a competent printer before he attempts to set catalog pages. Of course, this type of work is all on a time basis, but the operator feels that he must produce a good day's work nevertheless.

Catalog pages are of many types and varied in typography. The majority of them are illustrated with cuts, which makes the setting of the descriptive matter more difficult, as it must be run around the cuts in an acceptable manner. Every large business and mail-order firm has its catalog, and this class of composition is one of the chief sources of revenue for the printer.

Ditto marks are much used in setting up catalog pages. Each separate item then becomes a table in itself, requiring careful figuring to obtain a proper lineup.

An example has been chosen from a page listing type fonts for school use, supplied by a large type manufacturer. Let us follow the usual rule of analyzing the copy and see how it can best be set. Here is part of the first lot of type:

2 Fonts 6 Pt. Caslon No. 540
40 Lbs. 8 " " " "
400 " 10 " " " "

In the first column, there are three figures in the largest number; therefore, three figures must be allowed for all down the column.

In the second column, are two words, "Fonts" and "Lbs." The former being the longer, it is manifest that an allowance equal to it must be placed in that column. In 8-point type, this would be 3½ machine ems, with a figure space before and after the word. It is apparent that everything in that column must be centered on 3½ machine ems. This includes the ditto marks and the words "Lbs.," "Fonts," and "Font."

The third column contains two figures, or the equivalent to a machine em, and a figure space must be placed where there is a figure missing.

There is only one way to successfully line up ditto marks, and that is by taking the word out of the assembling elevator, adding space on either side, and aligning the marks under it.

Points to be observed. One important consideration that must be observed in setting composition of this character, is not to use spacebands between the words unless absolutely necessary. Use thin spaces or figure spaces, the latter preferred if the job is not crowded.

If it is found that the job cannot be set without using spacebands, put the same number in each line.

Open quotes are used for ditto marks. A careful check must be made before starting to see that no bent, broken, or dirty matrices are among those containing the ditto marks.

The operator should always bear in mind, in setting up a page requiring the use of ditto marks, that the work must be clean, free from errors, and properly aligned. A great deal of time could be lost in resetting even a few lines, as this would involve determining the lineup in each case.

Where work of this kind is performed regularly, it would perhaps be well to have the ditto marks (double) cut to run into the asterisk (*) channel in the magazine. This would eliminate the use of the single open quote, and provide the operator with more ditto marks.

Two exercises are provided for this lesson, neither of which is difficult to compose. The first one may be set to a narrow measure, but the second one will require a slug at least 24 picas wide.

KEYBOARD EXERCISES

Exercise 1

2 Fonts 6 Pt. Caslon No. 540
40 Lbs. 8 " " " "
400 " 10 " " " "
40 " 12 " " " "
20 " 14 " " " "

20 Lbs. 18 Pt. Caslon No. 540
2 Fonts 24 " " " "
1 Font 30 " " " "
1 " 36 " " " "

1 Font 6 Pt. Caslon Italic No. 540
2 Fonts 8 " " " " "
2 " 10 " " " " "
2 " 12 " " " " "
2 " 14 " " " " "
2 " 24 " " " " "
1 Font 30 " " " " "

1 " 6 Pt. Caslon Bold No. 540
1 " 8 " " " " "
1 " 10 " " " " "
1 " 12 " " " " "
1 " 14 " " " " "
1 " 18 " " " " "

1 " 24 " " " " "
1 " 30 " " " " "
1 " 36 " " " " "
1 " 48 " " " " "

1 Font 6 Pt. No. 21 Heavy Copperplate Gothic
1 " 6 " " 22 " " "
1 " 6 " " 23 " " "
1 " 6 " " 24 " " "
1 " 12 " " 25 " " "
1 " 12 " " 26 " " "
1 " 12 " " 27 " " "
1 " 12 " " 28 " " "
1 " 18 " " 29 " " "
1 " 18 " " 30 " " "

1 Font 8 Pt. Weddihg Text
1 " 10 " " "
1 " 12 " " "
1 " 14 " " "
1 " 18 " " "
1 " 24 " " "

5 Lbs. 6 Pt. Spaces and Quads
15 " 8 " " " "
120 " 10 " " " "
20 " 12 " " " "
10 " 14 " " " "
10 " 18 " " " "
5 " 24 " " " "
5 " 30 " " " "
5 " 36 " " " "
1 Font 48 " " " "

Exercise 2

NO.			OVEN		CODE	PRICE
6718. Seven	10-inch	holes	18x18	inches	Fixture	$50.00
4920. Three	5 "	"	18x18	"	Face	60.00
6822. Four	6 "	"	18x18	"	Flash	65.00
4922. Five	7 "	"	18x18	"	Fan	45.00
4923. Six	8 "	"	18x18	"	Fancy	85.00
4924. Seven	9 "	"	18x18	"	Fun	48.00
4925. Eight	10 "	"	18x18	"	Funk	53.40
4926. Nine	11 "	"	18x18	"	Fist	68.70
4927. Ten	12 "	"	20x20	"	Facing	69.80
4928. Eleven	13 "	"	20x20	"	Factory	70.00
4929. Twelve	14 "	"	20x22	"	Fade	73.00
4930. Thirteen	15 "	"	22x22	"	Fading	75.00
4931. Fourteen	16 "	"	22x22	"	Funny	80.00
6103. Three	7 "	"	18x18	"	Candy	50.00
6103. Four	8 "	"	18x18	"	Car	50.00
6104. Five	9 "	"	18x18	"	Carriage	50.00
6105. Six	10 "	"	18x18	"	Cass	50.00
6106. Seven	11 "	"	18x18	"	Cast	50.00
6107. Eight	12 "	"	18x18	"	Caster	50.00

Submit proof of Exercise 2 with answers to questions.

HOW TO RUN AROUND CUTS

Most newspapers and magazines are illustrated by means of what are commonly known as "cuts." These may appear as halftones, electrotypes, or zinc etchings, but whatever their form, they are used to improve the appearance of the publications and to add interest to the news and advertising columns.

Every competent operator should know how to lay out a page in which cuts, heads, or display lines appear in connection with straight matter. In certain offices, a layout is made before the matter is sent to the machine, and all the operator has to do generally is to follow the layout. Other offices follow the plan of having the story set first in its entirety, then the cuts are placed where they are wanted. This latter procedure involves the practical resetting of the story, but some typographers argue that this is just as cheap in the long run.

The operator, if he wishes to keep abreast of the times, should familiarize himself with copyfitting and the use of the layout kit. He should also take a course in advanced typography. There is no end to education along the lines of advanced typography.

In a great many instances, the measure alongside the cut is so narrow that letterspacing must be employed, and the lines must be properly and artistically spaced, and sent into the machine properly justified. This causes a great deal of poor composition to show up prominently in some publications, reflecting on the ability of machine operators, but the majority of the high-class magazines and publications would not tolerate this class of work.

Follow layout sheet. If the copy is accompanied by a layout sheet, the operator should endeavor to follow it as closely as possible. All captions are to be set first, cut to size, and a pica space allowed under them. The same space should be allowed on the other three sides of the cut. Caption lines should extend the entire width of the cut, including the space allowed on the side, but the reading matter must be no wider than the face of the cut. This will obviate the necessity of piecing out with slugs.

If no layout sheet accompanies the copy, then the operator must take a sheet of paper and lay out the page. Space must be drawn for the head and initial letters, and the cut placed in the proper position on the page and lines drawn around it. If the page size is to be 40 picas, then the columns will be 19½ picas, with a pica between. Measure the width of the cut, subtract this from 40, divide this by 2, and the result will be the measure to set the composition along the sides of the cut.

An easy way to count the number of lines needed for the space alongside the cut is to cut old lines to the proper measure and count them as they are placed in position. This is termed "blocking in." Care must be taken to allow for space above and below wherever subheads occur, and no "outs" can be left in the composition, as this would probably necessitate the resetting of the entire page.

In handling cuts, care must be taken not to damage the face or the printing surface in any manner. The cut should be kept on a galley and the composition placed around it as it is set. Halftones are expensive, and, once battered, cannot be used. Cuts of irregular and circular form require a special layout, made up by the operator.

KEYBOARD EXERCISES

Exercise 3

FIG. 1—*A Detail of Keyboard Cam Frame*—C is upper end of key bar, which has a notch in which the end of the trigger (D) is engaged. The trigger is furnished support by the small wire which extends through it. E is the cam, which is connected to its yoke (O) by a pivot which is represented by a small circle near the center of the yoke. F is the keyboard key rod, the lower end of which rests on the cam yoke. P represents the rubber roll which, in rotating, gives motion to the cam. The rubber roll may be detached from its shaft. R shows the cam stop strip. Its downward projecting tooth will cause the rotating cam to stop when the small pin, which is set crosswise in the slot, comes in contact with the tooth. S is the spring plunger against which the pivoted end of the cam yoke has contact when the opposite end of the yoke meets the resistance of the key rod in raising it. The spring (T) which surrounds the plunger has contact with the collar below and an adjustable bushing (U) above. V represents the front part of the spring bar, which is hinged on the wire that furnishes support for the cam yoke at that end. The wire may be seen just below the cam yoke beneath the spring plunger (S).

CUT

Set the preceding copy in 23-pica measure; 8-point, light-face type, using your own idea of placing and running around a cut about the size of the space shown above. Submit proof with answers to questions.

SUMMARY

HOW TO SET CATALOG PAGES WITH DITTO MARKS; HOW TO RUN AROUND CUTS

Aim: To teach the setting of ditto marks and how to run around cuts.

Things to know:

1. A careful checkup of all open quote marks should be made before starting.
2. Dirty, bent, or broken ones are to be discarded.
3. Wrong-face or wrong-font matrices are to be removed.
4. Open quotations may be obtained, doubled up on a matrix, for this class of work.
5. Calculations should be made carefully.
6. Each line should be set without error.
7. Lineups should be as nearly perfect as possible.
8. Hair spaces may be used if necessary.
9. The longest line should be set first, as customary in setting any table.
10. Indentions on lines are made by throwing in the jaws.
11. All captions are to be set first.
12. Letterspacing is done in narrow measures with hair spaces.
13. No outs must be left in setting the composition.
14. The same paragraph indention is to be maintained throughout.
15. A galley of old slugs will be useful for blocking in.
16. Due allowance should be made for heads if any.
17. Follow the layout if one is provided.
18. Position of cut on page is usually indicated by author.

Equipment:

Linecasting machine, copy, cuts, and pica gauge.

Things to do:

1. Check up the machine.
2. Check up ditto marks, leaders, and spaces.
3. Select the longest line in each lineup as a guide.
4. Make calculations from this line.
5. Follow instructions given in the introduction.
6. Measure the cut.
7. Subtract the result from total width of page.

8. Divide this by 2 and the measure alongside the cut will be obtained, when the cut is to be centered.
9. Set the caption even with the face of the cut, but centered on a slug, the width of which will include the pica allowance on each side of the cut.
10. Make a half dummy of the page, cutting old lines for this purpose.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. For what are open quotes used?
2. How can ditto marks be lined up?
3. Where would it be well to run double ditto marks?
4. In setting a table, which line should be set first?
5. Why should a page requiring ditto marks be clean, free from errors, and properly aligned?
6. What should every competent operator know?
7. How wide should caption lines be set?
8. What must an operator do if no layout sheet accompanies copy?
9. What is meant by blocking in?
10. Why should no outs be left in composition?

Submit proofs of Exercises 2 and 3 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 8

HOW TO SET TABULAR WORK; HOW TO SET RULE FORMS

OPERATORS should be familiar with the equalization of spaces on the keyboard arrangement before casting up a table. There are three sizes of spaces: (1) em space; (2) en space; (3) thin space. Therefore, in the process of equalization or comparison, in order to give a thorough understanding of the value of these spaces, a matrix equalization table may be compiled by drawing three columns and heading them as follows: em-space body, en-space body, and thin-space body.

In the em-space body column may be placed the em leader, em dash, 1/2, 1/4, 1/8, 3/8, 7/8, 3/4, +, ÷, =, ×, %, and @.

In the second column, under en-space body, may be placed the en leader, 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, $, ¶, †, ‡, §, /, [,], –, ", °, £, ℓ, and fractions on an en body, the asterisk (*), the en dash, the parenthesis, and the figure space. Superior and inferior figures and vertical braces are usually on an en body.

In the third column, under the head thin space, may be placed the comma, period, open and close quotes, space rule, and accent mark (′).

Matrix equalization chart. In the accompanying table is presented the comparative sizes of the various characters used in tabular composition. A study of this table will enable the operator to set tabular matter very rapidly and accurately.

Em-space Body				En-space Body				Thin-space Body
1/8	1/4	3/8	1/2	*	†	‡	§	, Comma
5/8	3/4	7/8	—	¶	/	ℓ	#	. Period
%	@	lb	+	$	ø	‖	£	Space rule
				[	]	(	)	′ Foot mark or accent
				–	..	?	1	′ Apostrophe or close quote
				2	3	4	5	‘ Open quote
				6	7	8	9	Thin space
				0	fig. space			

Comparative size of spaces. Two en spaces always equal an em. In most fonts, 2 thin spaces equal an en; 4 thin spaces equal an em. The thin space is always the same thickness as the period or comma. In the smaller faces, such as 6 point or smaller, the thin spaces are thicker than 4-to-em, and 2 thin spaces are thicker than an en. This must be watched particularly, and if space is to be allowed for two periods or commas in small type, then 2 thin spaces must be used.

The figures are always cut on the en body, and equal, in thickness, the en space.

Leaders are always on the same width of matrices as the em and en spaces and are interchangeable as to spaces. They are made dot, fine dot, extra-fine dot, hyphen, fine hyphen, extra-fine hyphen.

When the em and en spaces are raised on the duplex rail, they become leader matrices. When the leader matrices are raised, they become spaces, except in italic fonts, where the en leader casts a small capital L.

For exact centering of heads or words in a table, hair spaces are available in thicknesses of ½ point, 1 point, and 1½ points.

Avoid use of bent or dirty matrices. In order to obtain correct alignment in tabular composition, avoid the use of bent or dirty matrices. A wrong-font matrix will cause irregular alignment. Watch particularly for wrong-font quads or spaces and space rules. All space matrices of the same point size are not necessarily the same point-set; therefore, the em, en, or thin spaces cannot be mixed. For example, a 10-point figure space of one font may be .0692", and that of another may be of different decimal thickness.

Use of spaceband in the stub. The first part of a table, containing words or leaders, is called the stub. This may vary in width to use up all space not occupied by the figure columns. The spacebands should be used in the stub, but all the spacebands should be used before the leaders. In case of one word in a line, it is necessary to use a spaceband between the word and the leaders. It is best to place more than one spaceband in each line if possible. Particular care should be used to avoid widespacing in the stub. The spacebands always drive up until the line is right. As a rule, few spacebands are used in each line. Therefore, unless the line is well filled with matrices, the few spacebands will have to drive up, causing widespacing.

When a full line of leaders is wanted, open the jaws 2 picas beyond the measure and put em spaces and spacebands at the beginning to take up that space.

Modern machines are now equipped with a pointer placed on the assembler over the assembler slide. Where the table has two or more columns of figures, set the whole line, then take out all the figures over to the leaders. Draw the rest of the line over against the star wheel (which should be stopped), the end matrix being against the center point of the star wheel. Make a mark with a lead pencil under the pointer on the slide,

and this will indicate where your stub ends when this line and the pointer coincide.

The leaders of the stub should align in the front of the figure column. Leaders may be run up to the dollar sign, but should not be permitted to run closer than an en space to figures. This will avoid any possible confusion of a leader with a decimal point. Maintain the leader alignment by dropping spaces in front of the figures, equal to the variation of the figures in the column.

Uniformity of capitalization should be maintained in the stub. Tabular copy is generally edited as to words and figures, but not as to capitalization.

When a table contains more than one column of figures, the units of each column should align. The space between the columns is largely determined by the amount of space which is available. However, do not use more than 2 ems before the largest figure line of the second column if it is possible to hold down to that amount. When a crowded table is being set, as little as an en space may be used.

Set the total line first. In figuring the cast of a table, always be sure that you are allowing sufficient space to accommodate all the figures of each line. The total line, always being the longest, should be set first. The length of the longest line in the stub should be considered when deciding the proper amount of space between the columns of figures. Also, the head over the column must be taken into consideration. In case of a long head over small figure columns, it may be necessary to separate the columns more than usual. Speed in the composition of tabular matter is largely dependent upon the memory of the operator as to just how many spaces it is necessary to drop in front of varying columns of figures. Where the various figure columns of a table are nearly equal, composition will be easier if the same space is allowed for each column.

The total rule lines are made by using em dashes. In case the column contains an uneven number of figure spaces, let the total dash extend an en to the left of the dollar sign. En dashes are available in the en size as side sorts for use in extreme cases. The total dash, as a rule, can be recast, saving time.

Position of the dollar sign. Each column of a monetary table should begin with a dollar sign. A dollar sign should also be used on the total line. If more figures follow in the same table, the dollar sign should then be used with the first line of the succeeding part. Style varies in spaces around the dollar sign where the first number is shorter than the total. Some printers maintain an alignment of dollar signs by placing space between the sign and the first figure when necessary. The modern tendency, however, is to place the dollar sign against the figure, adding leader alignment.

Heads should always be made to appear centered over columns. This sometimes will necessitate actually placing a head a little out of center

where the top of an open column is very narrow, and other parts of the column widen.

To center a head over a figure column is simply a matter of mathematical calculation. Say there are 9 en spaces in the column, counting the period and comma, combined, as an en. There are 4 en spaces in the head, leaving a difference of 5 en spaces. Half of this space (an em and a thin space) should be placed on each side of the head.

To center heads, composed of words of variable widths, over columns of figures, the operator should first compose at least one line of the body of the table (preferably the total line) and place the stub before him on the copyboard; run down the matrices required for the various heads, separating the words with any space matrices to fill the line, dropping a few spacebands before the first word. Lift the matrices following the spacebands from the assembling elevator and place them on a slug on the copyboard. Turn the words to be centered on end, with the top of the matrix towards the operator, leaving all the space matrices in a vertical position. Using the eye as a gauge, the space matrices may then be shifted to bring each head centered over its column. A piece of metal furniture placed at the right end of the slug, used as a square to build against, will facilitate handling.

KEYBOARD EXERCISES

Exercise 1

Set this single-column table, allowing for 10 figure spaces in the column, or 5 machine ems. Use the pointer to indicate end of stub.

Alabama	17,187
Arizona	5,112
Arkansas	14,272
California	86,302
Colorado	25,753
Connecticut	19,664
Delaware	3,374
Dist. of Columbia	4,477
Florida	15,921
Georgia	14,290
Idaho	9,722
Illinois	62,446
Indiana	51,494
Iowa	38,624
Kansas	42,301
Kentucky	23,477
Louisiana	8,487
Maine	13,237
Maryland	13,583
Massachusetts	57,876
Michigan	63,600
Minnesota	41,917
Mississippi	11,058
Missouri	45,011
Montana	10,069
Nebraska	22,481

Nevada	1,145
New Hampshire	7,773
New Jersey	47,747
New Mexico	2,768
New York	109,586
North Carolina	30,283
North Dakota	9,842
Ohio	94,381
Oklahoma	288,912
Oregon	20,665
Pennsylvania	147,557
Rhode Island	4,492
South Carolina	10,590
South Dakota	9,155
Tennessee	24,495
Texas	58,824
Utah	9,599
Vermont	5,711
Virginia	23,781
Washington	28,059
West Virginia	18,057
Wisconsin	24,305
Wyoming	3,778
State Unknown	20,858
	1,464,098

Exercise 2

The second exercise is a two-column table, 5 machine ems to the column, with 1½ ems between and 1½ ems in front of the columns.

Allegheny, 1st	7,858,414	7,146,699
Armstrong, 2nd	566,711	649,174
Beaver, 3rd	236,587	267,863
Bedford, 4th	319,575	430,804
Blair, 5th	281,237	351,299
Bradford, 6th	52,467	57,711
Butler, 7th	223,015	220,895
Cambria, 8th	14,889,048	4,461,629
Cameron, 9th	.....	.....
Centre, 10th	445,268	303,813
Clarion, 11th	364,782	428,675
Clearfield, 12th	4,889,793	10,124,541
Clinton, 13th	134,568	94,692
Elk, 14th	799,699	602,428
Fayette, 15th	8,562,571	10,124,541
Greene, 16th	.....	627
Huntington, 17th	333,395	289,092
Indiana, 18th	392,029	483,795
Jefferson, 19th	4,717,363	4,528,774
Lawrence, 20th	198,666	37,207
Lycoming, 21st	87,730	37,207
McKean, 22nd	56,989	38,207
Mercer, 23rd	502,317	502,945
Potter, 24th	.....	.....
Westmorland, 25th	8,266,705	10,325,245

Exercise 3

In Exercise 3, are figures at each end, with heads over the columns. Use a figure space between the first column of figures and the word "Fine"; also between that word and "quality."

Former Price		*Sale Price*
$1,150.00	Fine quality Chinese, 12x17.4	$785.00
650.00	Fine Chinese, 17x8	435.00
750.00	Fine quality Chinese, 10x14	475.00
145.00	Fine quality Chinese, 5x7.10	95.00

Exercise 4

Exercise 4 requires the setting of heads over the columns, described in the information given in the beginning of this lesson.

Day's Sales	U. S. Govt. Bonds.	Other Domestic Bonds.	Foreign Bonds.	Total All Bonds.
Yesterday	$1,236,000	$6,591,000	$2,956,000	$10,783,600
Friday	1,397,400	10,945,000	6,071,000	18,413,400
Year ago	1,146,600	4,703,000	1,535,500	7,385,100
Two years ago	1,246,500	5,800,000	1,413,000	8,458,500
Year to date:				
1927	$17,497,000	$112,759,800	$57,704,200	$187,961,000
1926	15,527,250	106,618,500	27,006,500	149,152,250
1925	29,144,350	137,060,500	33,754,500	199,958,350
1924	61,441,325	134,358,000	23,885,000	219,684,325

Exercise 5

Exercise 5 is a narrow-measure table, with two columns of figures, heads over the columns, and letterspacing in one instance.

Country	Quota of 1927	Quota of 1924
Austria	1,485	785
Czechoslovakia	2,248	3,073
Belgium	410	512
Denmark	1,044	2,789
Finland	559	471
France	3,837	3,954
Germany	23,428	61,227
Great Britain and Northern Ireland	73,039	34,007
Greece	367	100
Hungary	967	473
Irish Free State	13,862	28,567
Italy	6,691	3,845

Exercise 6

The weather table, Exercise 6, not only has figures in the columns, but words also. Set "Pt. Cloudy" with a thin space between the words. Take it out of the assembling elevator, lay it on the copyboard, and align the other

words, Cloudy, Rain, Clear, and Snow, with it, using hair spaces if necessary. Mark the spacing required after each, on a slip of paper, and put in the space required. The word "Trace" is to be centered on 3 machine ems.

	Temperature last 24 hrs. High	Low	Barometer	Rainfall last 24 hrs.	Weather
Eastern:					
Albany	78	62	30.08	—	Pt. Cloudy
Atlantic City	76	66	30.08	—	Cloudy
Baltimore	86	66	30.08	—	Clear
Boston	80	58	30.00	Trace	Rain
Buffalo	72	62	30.00	—	Clear
Montreal	76	62	29.94	—	Clear
New York	76	68	30.04	—	Pt. Cloudy
Philadelphia	84	64	30.04	—	Clear
Pittsburgh	82	60	30.04	—	Clear
Portland, Me.	76	54	30.08	Trace	Rain
Washington	86	62	30.10	—	Clear
Central:					
Chicago	84	68	29.76	—	Cloudy
Cincinnati	84	62	29.98	—	Clear
Cleveland	84	66	29.96	—	Clear
Detroit	86	62	29.90	—	Clear
Indianapolis	82	62	29.92	—	Clear
Louisville	82	62	29.98	—	Clear
Milwaukee	84	56	29.76	.10	Rain
Southern:					
Atlanta	82	64	30.12	.34	Rain
Abilene	94	56	30.16	1.38	Pt. Cloudy
Charleston	80	70	30.12	.14	Cloudy
Galveston	82	76	30.00	—	Cloudy
Dallas	84	58	30.08	1.82	Rain
Jacksonville	82	74	30.10	—	Cloudy
Miami	84	78	30.06	—	Pt. Cloudy
New Orleans	88	72	30.04	—	Clear
Norfolk	82	60	30.16	—	Clear
Raleigh	82	62	30.16	—	Cloudy
San Antonio	88	72	29.96	—	Pt. Cloudy
Savannah	82	70	30.08	—	Clear
Tampa	78	66	30.08	.44	Clear
Western:					
Bismarck	62	38	30.12	—	Clear
Kansas City	82	50	30.06	.36	Cloudy
St. Paul	64	50	29.92	.01	Cloudy
Oklahoma City	82	52	30.16	.58	Clear
St. Louis	96	64	29.82	.04	Rain
Winnipeg	58	34	30.00	.01	Snow
Rocky Mountain:					
Denver	48	36	30.38	.40	Clear
Helena	54	32	30.26	—	Clear
Salt Lake City	56	40	30.26	—	Clear
Pacific Coast:					
Los Angeles	86	68	29.98	—	Clear
Portland, Ore.	64	48	30.06	—	Pt. Cloudy
San Francisco	76	52	29.96	—	Pt. Cloudy
San Diego	70	58	29.90	—	Cloudy
Seattle	60	48	30.04	—	Cloudy

Exercise 7

Another style of setting the weather table is shown in this exercise. This table is set on two slugs and then doubled up, on account of the variable columns. The first slug ends after the direction of the wind, "SW."

THE WEATHER

Place	—Tempo.— High	Low	Precipitation		Weather
Albany	60	SW.	Lt	00	Clear
Atlantic City	64	S.	10	00	Clear
Boston	64	NW.	Lt	100	Clear
Bismarck	64	S.	Lt	04	Clear
Buffalo	60	E.	10	50	Clear
Chicago	64	S.	16	00	Cloudy
Charleston	74	NE.	10	00	Clear
Denver	46	NE.	Lt	01	Cloudy
Eastport	68	S.	12	00	Pt. Cl'dy
Indianapolis	82	E.	10	00	Clear
Jacksonville	72	W.	Lt	00	Clear
Los Angeles	84	E.	12	08	Clear
Miami	54	N.	18	02	Pt. Cl'dy
Minneapolis	82	SE.	Lt	18	Cloudy
New Orleans	66	E.	Lt	00	Pt. Cl'dy
Norfolk	64	S.	Lt	00	Pt. Cl'dy
Philadelphia	82	SE.	Lt	100	Clear
San Antonio	68	NW.	12	00	Pt. Cl'dy
San Diego	60	SW.	Lt	00	Clear
San Francisco	76	NE.	10	00	Clear
Savannah	50	W.	Lt	00	Clear
Seattle	72	E.	14	00	Cloudy
St. Louis	66	SW.	Lt	00	Clear
Washington	64	SW.	Lt	00	Clear

Submit proof of the foregoing exercise with answers to questions.

HOW TO SET RULE FORMS

The wide range of work now being produced on the machine includes rule forms of many kinds. This wide variety makes it inadvisable to give more than general instructions, but those following should enable the learner to handle this work satisfactorily.

There are three commonly used methods of producing rule-form composition on the linecaster: by using the regular vertical rules and leaders from any font, special vertical leaders, and a set of special rule-form matrices. As these forms are usually composed, for the most part, of vertical and horizontal rule or leader lines, the production is, to a large extent, simply a matter of recasting.

On long runs of this class of jobs, much presswork can be saved by recasting the forms and running more than one-up.

Rules to be observed. The operator about to set or compose any class of rule work or figure work, and where proper alignment of the

down rules, cross rules, and figures is desired, should observe the following rules, as to both machine and matrix conditions, which may, if ignored or neglected, result in an improperly aligned table or form:

1. The spacebands should be clean and free to slide.
2. Care should be taken to see that no bent, dirty, wrong-font, and wrong-face matrices are placed in lines.
3. Lines should have the same number of spacebands in them, and the same proportions of properly filled lines should be observed.
4. Should the job require the reversing of cross-rule matrices between down-rule matrices, the same units of matrices should be replaced between their respective down rules.
5. The job, especially rules, should be cast in the same position in the first elevator, for uniform alignment; therefore, if possible, cast all lines in the light-face position.
6. The slug size, or thickness, should be proper, and not more than body size, which would allow breaks or white space between the down rules.
7. When a line has been cast, and it is desired to change the position of characters to make a better lineup (the line being held in first elevator), no additional matrices should be inserted in the line unless their equal is removed. As an example of this, suppose the down rules in a head required shifting of position, for better lineup, and the variation was slight, do not put an additional hair space or spaces to correct. Instead, remove a thin space and exchange it for multiples of hair spaces; with this done, place part of these multiples on the opposite side of the rule, to be shifted or moved, and the bulk of the multiples back to the space from which the thin space was taken.

The reader should understand that paragraph seven especially refers to matrices having no unit of comparative size, like reading characters, and not to regular table or unit-size characters which are self-aligning if used in proper multiples.

In using the regular vertical rules and leaders from any font of matrices, the operator is limited to one face of rules for the vertical columns. However, in many forms, this is sufficient. Figure 1 shows a simple form, set with the regular vertical rules and fine-hyphen leaders.

Detailed explanation of how to set a rule form. The composition of the body part of the form, shown in Fig. 1, consists merely of setting one line of leaders and rules and recasting, then one head. Ascertain the number of leaders desired between the rules of the various columns, and the number of slugs necessary to fill up the space of the job. Set the left vise jaw and assembler slide 2 picas wider than the measure of the form,

F. D. HARVEY & COMPANY

Daily Report

Date..... Job No.....

Foreman .....

Name	No.	Date	Hours	Loans

FIG. 1—A simple form with leaders and vertical rule.

Name	No.	Date	Hours	Loans

FIG. 2—The head used in Fig. 1, but separated by 2-point leads to show the individual lines.

in order to get at least 2 spacebands and em spaces in front of the leader matrices. Then assemble a line of leader and rule matrices in auxiliary position (on the duplex rail of the assembling elevator). If the font being used is italic, it will then be necessary to lower the rule matrices to normal position, because of the small-capital character of the rule matrix. Turn the recasting block to operative position, lock the spaceband-lever pawl, and send in the line in the usual manner. Start the machine by pulling out on the starting-and-stopping lever. Recast a sufficient number of slugs with the rules, as illustrated below, to put one between the lines of leaders in the finished job, and four extra for around the head and foot rules, thus spacing the leader line to the desired width and retaining a solid line for the rule column.

After casting the requisite number of lines of this sort, turn the recasting block to its normal position, and with the spaceband-lever pawl still locked, start the machine again. This will allow the leaders to drop into normal position, in line with the mold, casting leaders and vertical rules. Continue the recasting process until the requisite slugs like this are produced:

.....|.....|.....|.....|.....

Then assemble the lines, alternating with the rule slugs, and the rule and the leader slugs (Figs. 1 and 2).

In setting the head, it is usually necessary to use hair spaces of varying thickness to obtain a lineup of the rule lines. The rules at the top and bottom and the first rule under the head are brass rules. Machine rules, however, may be used at the top and bottom.

When a form of this kind is being locked for the press, care must be used to plane down the blank end of the slugs which are between the leader lines, or the vertical rules will show a distinct break in alignment.

Use of vertical leaders. Blank rule forms of any size can be composed very easily on the machine by the use of leader matrices punched vertically (¦) instead of horizontally (....). The production of these forms is simply a matter of recasting. Determine exactly the amount of space required between the horizontal leader lines, set a single line of matrices with the vertical leaders, properly spaced, and recast a sufficient number of slugs to fill the required space. The vertical leader, which will be at the bottom of the form, when made up, should be indented the same amount as is used between lines. The accompanying line shows the vertical leaders as they appear on the slug:

¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦ ¦

The slugs are placed vertically in the form. Continuous strips of brass rule of any face can easily be inserted between the slugs where desired (Figs. 3 and 4).

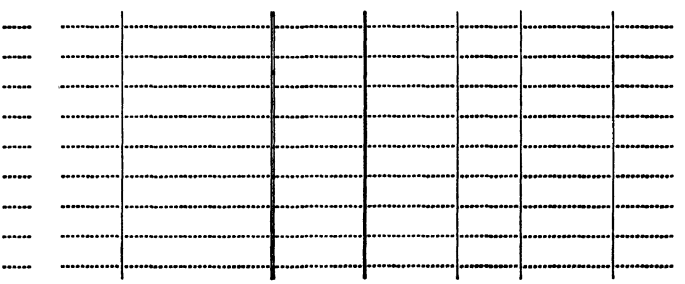


FIG. 3—Form set with vertical leaders.

Figure 3 consists of vertical leaders with brass column rules. The first line has been opened up to illustrate how the leader slug is cast, and also to show how leader slugs are butted to form continuous lines. The slugs shown are 12 point.

Vertical leaders are made in two sizes, 6 and 12 point. The 6-point size can be had in two strokes, four strokes, or four dots; and the 12-point size is available with four or six dots, and two, four, or six strokes.

The width of columns is regulated by the number of slugs used. When 6-point slugs are used, the column widths, or distance between the down rules, will be multiples of 6 point; with 12 point, multiples of 12 point. Spacing between horizontal rule or leader lines may be varied to suit any requirement. The matrices are all made on a uniform setwise size of .0553, or 4 points.

For the composition of extremely intricate rule or leader forms, special rule-form matrices should be used. These matrices are made in six sizes—6, 8, 10, and 12 point, two-letter; 18 and 24 point, one-letter.

The statement form, shown in Fig. 4, was set with 12-point vertical leaders. The horizontal and vertical rules are brass. The heads inside the boxes were set centered on separate slugs.

NUMBERS	WEIGHT	PRICE	AMOUNT

FIG. 4—Statement set with vertical leaders.

Figure 5 shows a portion of a large ballot set without the use of regular ballot squares. It was made up of units, some of which were recast in large quantities. You will note that the line on each side of the candidate name is composed of dashes and two vertical rules. This line was set by using spacebands and quads to the left of the dashes. The candidate line was set in the regular manner and it terminated with the vertical rules and dashes. As numerous slugs were used to separate the names of the various candidates, the dash slugs were recast from the first line set and were assembled on the bank before the first proof was taken.

Vote for Five Only

For STATE REPRESENTATIVE LAKE COUNTY

(31)	RAY F. ABBOTT	
(32)	OSCAR A. AHLGREN	
(33)	HENRY F. BATTERMANN	
(34)	HENRY L. DAVIS	
(35)	THOMAS GRANT	

FIG. 5—Ballot with horizontal and vertical rules.

KEYBOARD EXERCISES

Exercise 8

This rule-form job was set with space rules forming the boxes, and 1-point rules inserted horizontally after every two lines. One-point rules were placed around the composition, giving it a finished appearance. Follow this layout in setting the score card.

TOM BROWN'S MINIATURE GOLF COURSE

5015 — 42d Street, Long Island City

Date_____

Player	1	2	3	4	5	6	7	8	9

Exercise 9

Set the rule form shown below, following the procedure previously described for that form.

	Date Completes Course
Appeal Ptg. Co.	
Chas. Sommerfield	3–20–31
Bartlett-Orr Press	
Edwin T. Slack	10– 5–30
Chas. De Martino	3–30–31
Beacon Press	
Morton Lacks	1–20–30
Berkley Press	
Edwin Hermanns	5–21–31
Blanchard Press	
Seymour Weingarten	4–20–31
Louis Wolff	6– 8–31
Braunworth & Co.	
Wm. Zikaris	8–12–31
Brighton Ptg. Corp.	
Jack Wegweiser	11– 9–30
Bronx Home News	
Clyde Cronon	3– 4–31
Brooklyn Chat	
Edward Geist	11–19–30
Brooklyn Citizen	
George O'Donnell	8– 1–31
Brooklyn Eagle	
Albert Baechler	1– 1–31
Joseph Caretta	6–15–31
Brooklyn Eagle Job	
Henry Rocholl	11–18–30
Brooklyn Times	
Theodore Aull	3– 5–31
Chas. W. Muldoon	3– 5–31
Brown, M. B.	
Henry Cardello	4–19–31
Bullard, H. O.	
James Ennis	6– 1–31

Exercise 10

Now set the complete rule form, with vertical heads, as shown in the example below:

Names of Firms and Apprentices	Date of Full Card	Operating	Mechanism	Unmade-up Absences	Final Rating
McGraw-Hill Pub. Co.					
John A. Reilly	10–17–30	78	76	—	77
Charles Delmonica	12–16–30	75	72	—	73
Nicholas Spero	8–26–30	73	70	—	71
Morris & Walsh					
Harold Sturr	7– 2–30	88	83	—	85
Munsey, F. A., Co.					
Arthur Finnegan	6–25–30	88	70	—	79
Nation Press					
Chas. P. Kern	3– 4–31	70	70	—	70
New York Graphic					
Leonard Fleming	6–18–30	83	80	—	81
New York Sun					
Vincent Coschignano	4–14–31	70	66	—	68
N. Y. Monotype Co.					
Albert Tucci	4–21–31	67	66	—	66
O'Brien, C. J.					
Edwin Le Francois	7– 1–30	79	70	—	74
Overhage, Paul, Inc.					
Thomas E. Carlson	10–22–30	78	78	—	78
Paulist Press					
Julius Fogel	7– 7–30	78	76	—	77
Paulus-Ullmann Ptg. Co.					
Richard J. Mahoney	10–10–30	75	75	—	75
Publishers Printing Co.					
Joseph Licato	9–15–30	84	76	—	80
Herman Sherman	11–18–30	65	70	—	67
Rider Press					
Santo Marchese	10–17–30	73	71	—	72
Rogowski, Henri					
Lawrence Casazza	5–13–31	65	65	—	65

Submit proof of the foregoing exercise with answers to questions.

SUMMARY

HOW TO SET TABULAR WORK; HOW TO SET RULE FORMS

Aim: To teach how to set tables and rule forms on the linecasting machine.

Things to know:

1. The definition of tabular matter is the alignment of figures in columns.
2. Knowledge of the relative value of spaces on the keyboard is very essential before starting.
3. This information is furnished in the introduction to this lesson.
4. A pointer is placed on the assembler for the purpose of aiding the operator to determine the end of the stub.
5. A careful checkup of spaces and leaders should be made before starting.
6. Skill in setting tabular work is based on accurate counting of figure spaces and thin spaces in the figure columns.
7. When a word occurs in a lineup, it must be made to equal the allowance in machine ems for that column.
8. This is accomplished by taking the word out of the assembling elevator and measuring it in machine ems.
9. Lines set in tabular matter must be as tight as possible, owing to the small number of bands in a line.
10. Heads over figure columns must be taken into consideration when casting up the table, so that proper allowance may be made between the columns.
11. When setting rule forms, spacebands should be clean and free to slide.
12. Bent, dirty, wrong-font, and wrong-face matrices must be removed before starting.
13. Lines should have the same number of spacebands.
14. Job should be cast in the same position in the first elevator, in light-face position.
15. Slug size and thickness should be proper.
16. Line justification in the first elevator is permissible.

Equipment:

Intertype or Linotype equipped with vertical and other leaders required, copy, and pica gauge.

Things to do:

1. Select the line with the greatest number of figures in it, and set it first.
2. Make this line your guide for the column. If there is a total line, set it first.
3. Reset this line; take all the figures and spaces out of the assembling elevator, leaving the stub; stop the star wheel, turning one of the points horizontal; draw the stub over to the point of the star wheel and make a lead-pencil mark under the pointer.
4. When setting rule forms, check up on the leaders, spaces, and space rules.
5. Check up on the length and thickness of the slug.
6. Analyze the form to determine how it is to be set.
7. Carefully follow directions given.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. What is meant by the stub?
2. How many machine ems in $10,785,653?
3. How many figure spaces?
4. What is tabular matter?
5. On what is skill in setting tabular work based?
6. What three methods are commonly used in producing rule-form composition?
7. What can be accomplished by the recasting of rule forms?
8. In what position should all rules be cast if possible?
9. What should be removed before starting?
10. How is the width of columns regulated?

Submit proofs of Exercises 7 and 10 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 9

HOW TO SET LEADERS; HOW TO SET BASEBALL SCORES AND FOOTBALL LINEUPS

BEFORE the operator starts a piece of composition which involves the use of leaders of any description, he should familiarize himself with the different styles. A careful check should be made of those running in the machine, to see that they are in alignment, are of the same style, and will give the desired result. Machine leaders are made in two styles:

Round ..... Dot
Hyphen _____ Stroke

These two styles are subdivided as follows:

Dot .....
Fine Dot .....
Extra-fine Dot.....
Hyphen _____
Fine Hyphen .....
Extra-fine Hyphen .....

Dot leaders may be properly used in nearly all varieties of work except in blanks to be filled in with writing. These blank forms provide practically the only use for hyphen leaders.

Open-leader work. A neat typographical effect can be given to the appearance of a leader job, in which the lines are widely spaced, by setting it with open leaders, or with the leaders spread apart. The regular en-dot leader, the period, or the hyphen may be used in this style of work.

Leaders are opened up by dropping em spaces between the leader matrices. The space between all leaders in each job should be the same, but may vary in different jobs.

The first leader in the line should come near the last word in the line, but not against it. The amount of space to be used between leaders should vary in different jobs, according to the size of the face being used and the space between the lines. Widely spaced lines may have more space

between the leaders than those where the lines come close together. An ideal arrangement is to have a little less space between the leaders horizontally than is used between them vertically.

There are two styles in common use for the open leaders. One is to align all the leaders in a column. This is accomplished by always having the same amount of matrices following the last leader and the same space between the leaders.

The following example, using dot en leaders for the open-leader work, illustrates this style. In setting leader work, it is considered poor workmanship to set the matter so wide that great rivers of white show between the columns. The following examples would be greatly improved in typographical appearance if set in a much narrower measure. They are here set wide purposely to illustrate the two methods of spacing the leaders:

London *(Upright)*	$100.00
London *(Console)*	135.00
Heppelwhite	145.00
Baby Console	175.00
Sheraton *(Sans Inlay)*	200.00
Jacobean	245.00

Diagonal rows of leaders. Another method is where the leaders are staggered and appear in diagonal rows, the leaders in three lines forming a diamond. This is accomplished by placing half the amount of space used between leaders, less half the thickness of the leader, following the last leader of each alternate line. Use en leaders, either dot or hyphen, for this method because of the necessity of dropping the half-thickness space which, in this instance, is a regular thin-space matrix.

London *(Upright)*	$100.00
London *(Console)*	135.00
Heppelwhite	145.00
Baby Console	175.00
Sheraton *(Sans Inlay)*	200.00
Jacobean	245.00

When open-leader work is desired in composition which has a variable word on each end of the slug, the leaders should align vertically. This can easily be accomplished by setting the first name or column and leadering all the way to the end of the slug. Then set the other name or column and cut the slugs in each line individually to whatever measure will allow the leaders to end near the column or name.

The following lines illustrate how the lines are first set:

ACT I

Overture	Orchestra
1. "All Who for Servants"	Chorus
"They Say"	Serpolette and Chorus
"Scandalmongers"	Chorus
2. "I May Be Princess"	Serpolette

The illustration below shows how they appear after they have been sawed and assembled:

Overture . . . . . Orchestra
1. "All Who for Servants" . . . . . Chorus
"They Say" . . . . . Serpolette and Chorus
"Scandalmongers" . . . . . Chorus
2. "I May Be Princess" . . . . . Serpolette

Lining up variable columns. When a lineup is desired in two or more columns, any measure, and the columns contain words of varying length, set each variable column on separate slugs, as shown here:

Alabama	C. Hunter	Mobile	16	97
Arizona	H. Aughtry	Phoenix	16	84
Arkansas	C. B. Wells	Little Rock	21	95
Alberta	C. A. Voight	Calgary	21	95
British Columbia	C. K. Snell	Vancouver	20	74
California-Nevada	G. E. Holohan	Los Angeles	19	88
Colorado-New Mexico	W. M. Bowan	Denver	21	99
Connecticut	D. D. Gross	Hartford	21	99
Delaware	L. R. Beauchamp	Harrington	21	90
Eastern Canada	Stuart Boa	Montreal	22	94

The preceding copy was set in three columns. The first column, commencing with "Alabama," ends in front of "C. Hunter." The second slug ends in front of the word "Mobile." The figures are contained in the third column of slugs, being cast on the same body size, and are easily aligned by using the same em spaces in each line.

When it is desired to align words in two or more columns, the words in each column should be set on separate slugs. The slugs are then sawed, so as to leave approximately the same spacing between columns, as illustrated below (Exercises 1, 2, 3).

California	Georgia	Minnesota	Oregon
Connecticut	Illinois	Michigan	South Dakota
Delaware	Indiana	Nebraska	Wisconsin
Florida	Kentucky	New York	Washington

KEYBOARD EXERCISES

Exercise 1—Table with Two Justifications

DATE	NAME	AGE
Jan. 16	Charles Dryden	61
Jan. 24	John Phillips	58
Feb. 6	Abner Smith	54
Mar. 7	Harry Stacy	48
Apr. 14	Charles Weldon	25
Apr. 21	William Spencer	56
June 4	Edward Clayton	55
Aug. 11	John A. Mitchell	59
Sept. 24	James B. Chamberlain	62

Dr. Ruth Esther Wilson	Mrs. Bessie Lambert
Mrs. Emily Patten	Mrs. Virginia Cotter
Dr. Evelyn Porter	Miss Edith Conant
Miss Mary O. Lucas	Mrs. Theresa Irvine
Dr. Josephine Prentice	Miss Lucy Evans

Submit proof of the foregoing exercise with answers to questions.

Exercise 2—Heads Centered over Columns

Points of Comparison	Ideal Car of M.S.S.A.E.	The Reo Flying Cloud
Wheelbase	121 inches	121 inches
Number of cylinders	6	6
Type of motor	L-Head	L-Head
Crankshaft	7 Bearings	7 Bearings
Bore	3¼ inches	3¼ inches
Stroke	5 inches	5 inches
Piston displacement	249 cu. in.	249 cu. in.
S. A. E. Rating	25.2 h. p.	25.2 h. p.
Actual horsepower	60	65

Breed	Cow Years	Av. Milk	Av. Test	Av. Fat
J. M. Koonce ..... Mixed	*4.8	9872	4.17	412.18
Averson Bros. ..... G. & P. B. G.	12.6	8261	4.97	411.21
Carl Peterson ..... G. G.	5.7	9798	3.75	411.21
C. H. Lanyhurst ..... G. G.	6.8	7089	5.16	366.42
C. H. Welch ..... G. & P. B. G.	7.7	7305	4.98	364.42
A. Dahlman ..... G. G.	11.0	8151	4.37	356.82
Newman & Son ..... G. G.	7.6	7183	4.96	356.31
W. J. Darby ..... G. H.	5.6	9339	3.73	348.75
Carl Duesler ..... G. & P. B. G.	7.9	7548	4.55	343.40

Exercise 3—Program with Open Leaders

Piano Duet—
"Nordlicher Tonbilder" . . . . . *Gade*
"Love Song" . . . . . *Faust*
SCHMIDT SISTERS

Voice—
"Life" . . . . . *Salter*
"Mother of Pearl" . . . . . *Ball*
"Keep on Hopin'" . . . . . *Maxwell*
BARBARA SCHMIDT

Piano Prelude—Selected
"Melodique" . . . . . *Schutt*
MAE SCHMIDT

Musical Readings—
"Food for Gossip" . . . . . *Jones*
"Fair Warning" . . . . . *Pease*
"Foolish Questions" . . . . . *Taylor*
BARBARA SCHMIDT

Saxophone—
"Saxophobie" . . . . . *Weidoft*
"Valse Erica" . . . . . *Weidoft*
IMOGENE PIERSON

HOW TO SET BASEBALL SCORES AND FOOTBALL LINEUPS

Baseball scores and football lineups are part of the daily work of the newspaper operator. There is a certain technique involved in getting them up quickly. A great amount of latitude is permitted in the matter of

abbreviations, the policy being to get everything in the line, so that it will be understandable to the reader.

An important point for the operator to bear in mind, in setting scores, is to avoid changing the machine. This is done by using a run-down for uneven measures. Many of the newspaper columns are set 12½ picas. In order to set a table which requires doubling up, it necessarily means that each half of the table would have to be set 6¼ picas. The best plan for the operator to follow is to establish a system of running down capital letters and spaces, in order to get the correct measure. As this run-down will be cut off on the saw, the system facilitates the work of the operator.

How run-down is made. A new operator on the job should inquire of the copycutter as to the customary run-down when he receives a take of doubled-up matter. The run-down should be made on the front, or left-hand, end of the slugs, as this is the part ordinarily sawed off in all other kinds of work. The run-down should contain approximately 2 or 3 em spaces between the capital letters and the type, to make the place of sawing easily discernible. An example is given herewith:

ETAOINSHRDLU	Pittsb'gh	94	60	.610	
ETAOINSHRDLU	Pittsb'gh	94	60	.610	
ETAOINSHRDLU	Pittsb'gh	94	60	.610	
ETAOINSHRDLU	Wil'ms,rf.	5	0	0	3 0
ETAOINSHRDLU	Wil'ms,rf.	5	0	0	3 0
ETAOINSHRDLU	Sand,3b.	4	0	1	3 0

This system will be found useful in setting baseball, football, and bowling scores, together with work of a similar nature which is frequently doubled up in a column.

Set the total line first when starting a table of any kind. In double-column measure, be sure to place equal spacing between all the columns, allowing enough space for the heads that are centered over the figure columns. One line may have to be reset in order to arrive at the proper spacing between the columns of figures.

NATIONAL LEAGUE STANDING

	W.	L.	Pct.		W.	L.	Pct.
Pittsb'gh	94	60	.610	Cincinnati	75	78	.490
St. Louis	92	61	.601	Brooklyn	65	88	.425
New York	92	62	.597	Boston	60	94	.390
Chicago	85	68	.556	Phila.	51	103	.331

YESTERDAY'S RESULTS

NEW YORK, 5, Philadelphia, 4—10 innings.
BROOKLYN, 5, Boston, 3.
Cincinnati, 1, Pittsburgh, 0.
St. Louis, 6, Chicago, 4; called end of the eighth; rain.

The run-down used on this table follows:

ETAOINSHRDLU	Pittsb'gh	94	60	.610
ETAOINSHRDLU	St. Louis	92	61	.601
ETAOINSHRDLU	New York	92	62	.597

The standing of the teams is shown above; first, after it has been doubled up, and second, the run-down used in its composition. The space rule was placed on the ends of the lines in the first section.

KEYBOARD EXERCISES

Exercise 4

In setting a football lineup, the operator has a choice between setting it half measure or using the pointer to center the positions of the players. Either method is acceptable if the lineup is correct in the columns.

The lineup:

Los Angeles (57)	Pos.	New York (0)
E. Wheeler	L.E.	Burkley
Harris	L.T.	Josephs (Capt.)
J. Wheeler	L.G.	Mayer
Casey (Capt.)	Centre	Hayes
Hasenauer	R.G.	Wood
Fisher	R.T.	Marquardt
Grimes	R.E.	Donovan
Zumwalt	Q.B.	Sheridan
Moll	L.H.	Westlock
Hemsley	R.H.	Walker
Dyer	F.B.	Damm

Exercise 5

Set this baseball score, using the method previously described. Place the space rule on end of first half.

CUBS	A	R	H	O	E	WHITE SOX	A	R	H	O	E
Blair, 2b...	4	0	1	5	1	Kerr, 2b.....	4	0	1	6	0
Beck, 2b...	0	0	0	1	0	Barnes, cf...	4	1	2	3	0
Engl'h, ss..	4	1	2	7	2	Ryn'lds, rf..	5	1	1	4	0
Cuyler, rf..	5	1	2	1	0	Jolley, lf....	4	0	0	3	0
Wilson, cf..	4	2	2	4	0	Clancy, 1b...	4	0	1	9	1
St'ph'n, lf..	3	1	1	1	0	Cissell, ss...	4	0	1	7	0
Hartn't, c..	3	1	1	7	0	Tate, c.....	4	2	3	4	0
Grimm, 1b.	4	0	0	12	0	Kamm, 3b...	3	0	1	3	1
Bell, 3b....	5	0	2	3	1	Car'way, p..	0	0	0	0	0
Blake, p....	3	0	1	4	0	Braxton, p...	3	0	0	0	0
Petty, p....	0	0	0	0	0	Thomas, p...	0	0	0	0	0
*D. T'ylor..	1	0	1	0	0						
Totals....	36	6	13	45	4	Totals....	37	4	10	39	2

*Batted for Blair in 9th.

Cubs .....000 110 013—6
White Sox .....000 021 010—4

Runs batted in—Blair, Wilson 2, Clancy 2, Barnes, Bell, Kerr, Hartnett. Two-base hits—Kamm, Tate, Bell. Home run—Wilson. Stolen bases—Barnes, 2, Kerr. Sacrifices—Wilson, Blake, Kamm, 2, Caraway, Hartnett. Double plays—Kerr - Cissell - Clancy; Clancy - Cissell - Clancy; Cissell - Kerr - Clancy. Bases on balls—Off Caraway 4, Blake 4, Thomas 1. Struck out—By Caraway 4, Blake 4, Thomas 1. Hits—Off Caraway, 8 in 4 innings (none out in 5th); Blake, 9 in 7 2-3; Braxton, 5 in 4 1-3. Wild pitch—Braxton. Winning pitcher—Petty.

Submit proof of the foregoing exercise with answers to questions.

Exercise 6

The soccer lineup below is widely used on some of the metropolitan papers. Care must be exercised to equalize the positions before casting. This is done by taking the mats out of the assembling elevator and equalizing them on the copyboard.

The Richmond Hill and Manual Training High Schools struggled to a 1-1 tie in a soccer contest yesterday at Victory Field. All the scoring was confined to the first half, Willock and San Antone registering for the rival elevens.

The lineup:

Pos.	Rich. Hill	Manual
Goal	Lopez	Hilton
R. B.	Wanderman	Kafman
L. B.	McGlynn	Arauz
R. H.	Schmidt	Arasotti
C. H.	Willock	Rainey
L. H.	Campbell	Lawson
O. R.	Cambus	Ellustando
I. R.	Rosencrantz	San Antone
C. F.	Goldin	Kollman
I. L.	Carey	Skarr
O. L.	Lawder	Valore

Goals—Willock, San Antone. Referee—Fiery. Time of halves—25 minutes.

SUMMARY

HOW TO SET LEADERS; HOW TO SET BASEBALL SCORES AND FOOTBALL LINEUPS

Aim: To teach how to set leaders, baseball scores, and football lineups.

Things to know:

1. Leaders are made in two styles, and knowledge of each is important.
2. Leaders are used in tabular work and programs and for many other purposes in machine composition.
3. En leaders are opened up by dropping em spaces between the leader matrices.
4. The space between all leaders in each job should be the same, but may vary in different jobs.
5. Dot leaders may be properly used in nearly all varieties of work, except in blanks to be filled in by writing.
6. Blanks of this nature provide practically the only use for hyphen leaders.
7. A variety of emphasis and distinction can be obtained even with one size of matrices, without machine changes, by using lower case, capitals, italic, or capitals and small capitals.
8. Baseball scores and football lineups are generally set in half measure.
9. Where the measure falls on ems or half ems (picas), indentions can be made with the vise jaws.
10. Where the measure is 12½ picas, a run-down must be used.
11. The space rule is always on the end of the first line.
12. Considerable leeway is allowed on abbreviations—just so the name is understandable.
13. Care must be exercised not to allow the spacebands to pull up too far.
14. When sawing the lines, care must be used to cut them accurately.

Equipment:

Linotype or Intertype, copy, and pica gauge.

Things to do:

1. Check up on the em and en leaders to see that they are all the same size and face.
2. Set each of the examples shown in the introduction to the lesson.
3. Establish a run-down for half measure.
4. If measure is even ems or half ems, use the vise jaws for indenting.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. What are the two styles of leaders?
2. What is the purpose of each?
3. How can leaders be aligned vertically when open-leader work is desired in composition which has a variable word on each end of the slug?
4. Why is it necessary to check up on the leaders?
5. How should leaders align in open-leader work?
6. In what kinds of work are run-downs used?
7. Why is a run-down necessary in this type of work?
8. Where are baseball scores and football lineups usually printed?
9. What can be used for indenting if the measure is even ems or half ems?
10. Where should the space rule be placed in the setup of a baseball score?

Submit proofs of Exercises 1 and 5 with answers to questions.

I·T·U LESSONS IN PRINTING

A Series of Practical Printing Texts for Shop, Home, and School

PRINTED IN U. S. A.

LINOTYPE AND INTERTYPE UNIT VIII—LESSON 10

HOW TO SET NEWSPAPER HEADS; HOW TO SET DISPLAY ADS; HOW TO CARE FOR THE MACHINE

DISPLAY HEADS for nearly all newspapers and for many magazines are now set on Linotype, Intertype, and Ludlow machines. Headletter machines are specially designed as to keyboard and magazine. Linotype and Intertype machines can be equipped to cast headletter up to 60 point. Their present limit is from 36-point expanded up to 60-point condensed. Slugs of 18 point and up are cast in display molds. Ludlow casters will produce display up to 84 point in size. With such versatile equipment, provided by the machines mentioned, practically all newspaper and magazine display may be machine-set in even strips up to seven and eight columns wide.

The student should understand that, although Linotype and Intertype headletter is set from the keyboard, all Ludlow display is produced from handset matrices locked into a mold and cast much after the manner of Linotype or Intertype slugs.

Headletter display cannot be set on the Lanston Monotype keyboard, the limit on which is 14 point. Lanston casters produce, for handset composition, sizes up to 48 point.

Operators of slugcasting machines should note that two different units of measurement are used in slug work. For slug thickness, .014 inch is the basis for point measurement. For slug length, the regular type standard is used.

Headletter on display mold. The mold disk may be equipped with one universal-adjustable mold which will cast slugs varying from 5 point to 14 point and one advertising-figure mold which will cast slugs up to 12-point body. The largest and best lines to use with the regular advertising-figure mold are the 12-point lines. A line of two-letter matrices should never be used to cast from a headletter or display mold because the two faces will cast on the slug, rendering it of no practical value. This mold has a cap with a wider lip than the universal mold, permitting the use of headletter faces which will furnish slugs having an overhanging

part or shoulder in skeletonized slugs. In addition to the two molds, there will be two headletter molds. One may have a maximum body size of 36 point, and the other may have a 24-point body maximum.

If the operator takes the copy as it runs, it may include the setting of reading matter, subheads, and display heads. In most newspaper practice, however, the display heads are furnished to the composing room on a sheet separate from the copy for the body of an article or a story, the copy for the head carrying a suitable guide line.

Use of first-elevator filling piece. Display and headletter faces, 18 points or more, require the use of this piece, when the headletter mold is used. This piece is commonly called the "flap." Turn this filling piece over under the first elevator when setting faces 18 points or more for the heads. The filling piece should not be used where a line of matrices carries some characters in the auxiliary position, because an abnormal elevation of the lower lugs of the matrices, in relation to the grooves of the mold keeper, will usually result in smashed lugs, combined with a splash of metal.

The newspaper item, shown in Fig. 1, illustrates a common form of small head. In a head of this kind, the first line may be either a full line or centered. The first line of the second deck should be set full measure, and the run-over centered.

The dashes used between the decks of a head usually are cast with a border block and dash slide, but the regular machine em-dash matrices may be used in making newspaper dashes. The operator should always drop the dashes in their proper places, as the type is set. The dash used at the close of an article should be longer than the one used in the head. Each paper usually has a definite style for dashes, and office style should govern their use.

The item in Fig. 2 illustrates a common form of head—credit line, city, and date line, and dash rule between sections of the head. The first deck is set in the style called "step" indention or dropline. The ideal for lines of this kind is to have the same indention at the beginning of the second line as is used on the end of the first line. In the second deck, which is set in an inverted-pyramid style (commonly called pyramid style), the first line should be full measure and the second line should be centered on the slug. The short dash, or "Jim" dash, is used between decks.

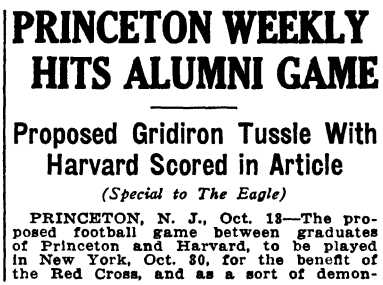
ELECTRICAL SALES UP

Equipment Business Holds Even With Figures Reported for Last Year

The trend of business in the electrical industry is slightly upward according to reports received by the Electrical World. Some factors have experienced a moderate decline in sales volume and others are comparable with last year.

A fair demand for transmission and distribution equipment featured operations in the New York market during the last week. Reports from the middle

FIG. 1—A common form of small head.



PRINCETON WEEKLY HITS ALUMNI GAME

Proposed Gridiron Tussle With Harvard Scored in Article

(Special to The Eagle)

PRINCETON, N. J., Oct. 13—The proposed football game between graduates of Princeton and Harvard, to be played in New York, Oct. 30, for the benefit of the Red Cross, and as a sort of demon-

FIG. 2—Note credit line and date line especially in this head.

City, date, and credit lines. Local news items usually are started as a regular paragraph, with no city or date line at the beginning. However, from other cities, news usually carries the name of the city and state from which the item is received, and the date. Where the city is widely known, as Chicago, Montreal, etc., the name of the state or province is considered superfluous. Some papers prefer to have the name of the city in all capitals, while others use capitals and lower case. The name of the state is usually abbreviated, as is also the date. The date is usually followed by an em dash.

News items are gathered from many sources. It is frequently desired to give special credit for various articles, such as *Special to the News; By a Staff Correspondent;* the name of the paper from which the item is clipped, or the mark or symbol used by a news-service organization. There are many ways in common use in which these credits are set. One is to set the name of the author or special correspondent in a centered line in small type, bold face or italic. The credit line is frequently inclosed in parentheses, as shown in Fig. 2. Remember that credit lines should not be used by the operator unless they are marked on the copy.

Logotypes are frequently used in date lines to give credit to the news association furnishing the article. The Associated Press has adopted the letters AP; the United Press, UP; and the International News Service, INS. The letters are generally inclosed in parentheses and placed in the line immediately following the date, followed by an em dash.

SEVERAL STYLES USED

Figure 3 shows a four-deck head, with dropline, three-line inverted pyramid, crossline, and three-line hanging indention. Sometimes, a three-line step is used for the first deck. In a three-line drophead, the first line should be set flush on the slug. The second line should be centered and the third line set on the right-hand side of the slug with the space starting the line.

The first line of the second deck should be set full measure. The third line is indented on each end twice the amount of the indention of the second line.

COTTON ADVANCES AFTER EARLY DROP

Better Technical Position Now Apparent in Ready Response of Prices to Trade Buying

COOLER WEATHER IS FELT

United States Leads the World With 139,674 Bales Against 126,169 in Egypt—Markets Reflect Change.

Special to The New York Times.

ALBANY, July 10.—A further advance in the cotton market today encountered

FIG. 3—A four-deck head showing (A) the dropline, (B) inverted pyramid, (C) crossline, (D) hanging indention, (E) Jim dash, (F) credit line, and (G) date line.

The crossline in the third deck should be full measure. Use care to see that the crossline is not too full, as it may cause injury to the lugs of the matrix by shearing or smashing them.

The first line of the hanging indention in the fourth deck is set full measure and all the following lines are indented 1 em on the left end of the slug.

Subheads should be centered. Subheads are frequently used in a story to break the monotony of solid reading matter and to help attract attention to the various parts. Subheads are usually limited to one line each, to be effective, and should be shorter than the full measure. They are usually centered and set in bold face by the operator right along with the text.

Lower case is widely used for heads. Newspapers that have adopted caps and lower case for heads have nearly all done so only after lengthy study of the comparative legibility of this form, as compared with the old-fashioned, all-cap style. The headwriter can make his heads more complete when lower case is used in the main deck because of the increased number of letter units at his command. Space for extra letters means a great deal in formulating heads. Another advantage is the closer spacing between words which is possible with capitals and lower case.

Frequently, there is only room for a thin space, but this does not impair legibility, as in the case of two words set in all capitals and not spaced widely enough apart. The accompanying example (Fig. 4) shows a head set in lower case—24 point, 12 point, 14 point, and 10 point.

How to set boxed articles. In order to display certain special articles or heads, they are sometimes marked to be set for a "box," or inclosed with rules (Fig. 5). Items or heads so marked, should usually be set either 1 pica or 18 points less than the regular column measure, when a plain, light rule is to be used. This allows sufficient space for the rule which is cast on the edge of a 6-point slug.

Ornamental borders are used at times in this class of work, being selected with the idea of matching the face. The combination of the proper face and border will not fail to produce a pleasing typographical effect.

Special departmental heads. Newspapers and magazines nearly all contain special departments, run on the inside pages, which are embellished with double-column heads, usually in box form, surrounded by an appropriate border to match the face. These heads will be observed on the editorial, society, sports, and other pages in the newspapers, and special

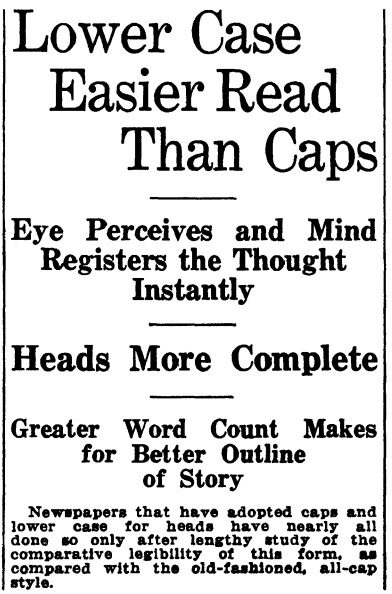


FIG. 4—The old-fashioned head is rapidly giving way to the easy-to-read head.

Submit a proof of the foregoing head with answers to questions.

MUST APPEAR ODD

To the Editor of The News:

BEVERLY HILLS, Cal., November 25.—If you think we are not prosperous and cuckoo both, read these: "Three hundred thousand dollars for seat on the Stock Exchange." You pay for that seat where nobody sits down. They stand and yell and sell something they haven't got and buy something they will never get. You can get on the curb for forty thousand. All you have to do is make signs to a guy in a window and try to keep from being run over by a truck.

In the next column we read "Kentucky prohibits betting on races." You can gamble on how high people pay for their bread, but you can't bet on how fast a horse will run. We must appear odd to the foreigners!

WILL ROGERS.

FIG. 5—One-pica indention less than regular column width allows for 6-point strip border at sides.

departments conducted in current magazines. Figure 6 shows one example of the many that can be produced by using the proper face-border combination.

HOW TO SET DISPLAY ADS

One of the most important factors in setting a display ad is the selection of type faces that will be harmonious with the nature of the articles advertised. In most cases, the machine compositor has a layout of the ad accompanying the copy, which, of course, must be followed. In the event of having to make the layout, in addition to setting up the composition, the first consideration would be to analyze the message and the product advertised. After deciding whether it be an ad for a trade journal, newspaper, class magazine, or technical publication, the next item to consider would be the appeal. Has it feminine or masculine appeal, professional or class appeal? A type face would then be selected to co-ordinate with the appeal (Fig. 7).

Type faces should match appeal. Feminine appeal would naturally call for the use of passive faces, such as Garamond, Kenntonian, Cloister, Caslon, or Vogue.

FARM AND GARDEN

By HERBERT THOMPSON

FIG. 6—Example of a boxed department head.

Masculine appeal, having a stronger tone, would necessitate the use of such faces as Bodoni, Century, Scotch, and other faces that are symmetrical in design.

Prescribing the correct type faces in an ad has very much to do with the success of its particular appeal. A good product advertised with a

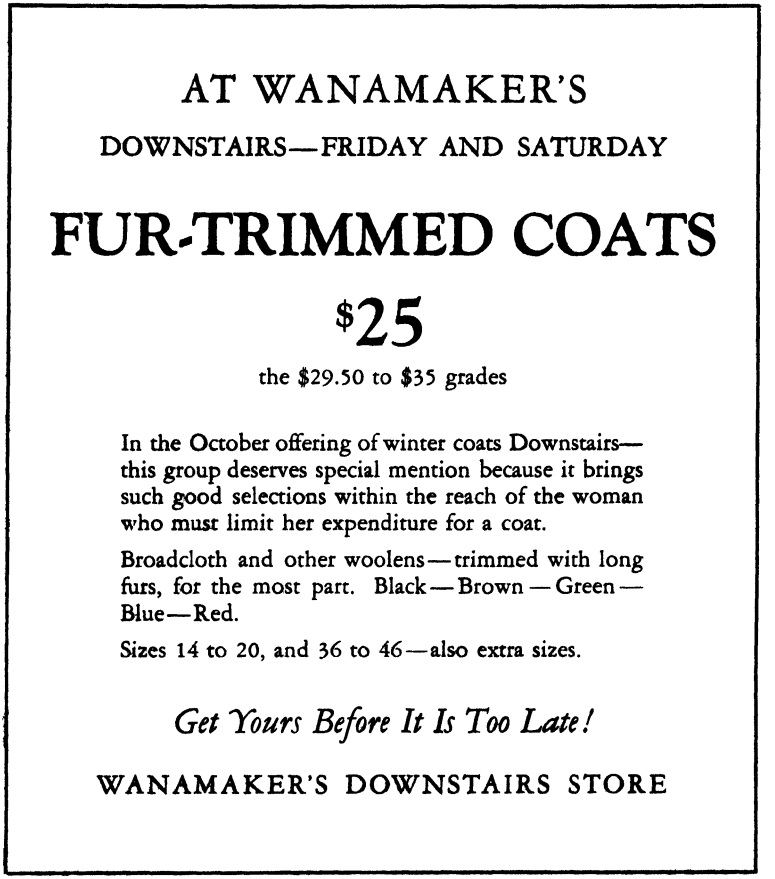


FIG. 7—Display ad, combining 24-point Goudy with Garamond, using border cast on the machine.

poor typographical layout can very easily be passed by. Many ads are absolutely spoiled and lose the greatest amount of their attention value because the correct type faces have not been used; and, furthermore,

countless ads are ruined because the printer did not have the faces prescribed and the job was set in the "next best" face available. Naturally, the advertiser loses money on his project and does not send any more of his work to that particular printer. It is not sufficient just to have the job "up in type." Employ artistic sense and the best typographical knowledge and it will be found that the extra care will be repaid a hundred-fold.

When using display faces on the linecasting machine, the auxiliary magazines are used, both on the Linotype and on the Intertype. Some font schemes are laid out so that the lower-case letters of a large face are run in the cap section of a 90-channel magazine and the capitals in the side magazine. The student will notice that the auxiliary keyboard on the Intertype is laid out in precisely the same fashion as the capital section of the main keyboard, with the exception of the figures. The Linotype auxiliary is operated from the regular keyboard.

On linecasting machines equipped with three main magazines and three side magazines, it is advisable to place all the fonts on the machine to be used at one time, thus minimizing extra ups and downs at the keyboard and incidentally proving less fatiguing.

The usual course of the experienced machine compositor is to set the display type first, taking the largest size first and continuing the scale downward.

The use of advertising figures must be observed closely, differing considerably from the regular display faces. Advertising figures are not stamped in the auxiliary position, as at first would be supposed. A two-line or a three-line mold cap is used, according to the size of the advertising figure. These advertising figures usually run pi, but where they are employed constantly, they are cut to run in the side magazine. When a line of 8-point type is used with 24-point advertising figures, it is necessary to open the knife block, allowing the large figure to pass through the knives freely. The operator must not neglect to set the knives back to 8 point to resume the job until he encounters another line requiring the use of advertising or overhanging figures. Figures 8 and 9 show the advertising figures and overhanging figures, with display sidehead:

Winter Underwear—Reis and
Li Falco—All Weights.....the Suit **$2.50**

FIG. 8—Twelve-point Century Bold with two-line advertising figures. Shows each line as it is set.

SHOES **Greatest values ever sold over the counter, today.....** **$6.00**

FIG. 9—Showing 24-point Bodoni Bold capitals, with Bodoni Bold figures.

Several exercises are provided at the end of the lesson, to be set according to copy. Take one at a time, analyze it thoroughly, and set it up. Then take up the next one in the same manner.

KEYBOARD EXERCISES

Exercise 1

This small ad was set in the Century series, inclosed in border. This example is set in newspaper measure and makes a neat display. Set the type first to measure, then cast the border.

SPECIAL
EXHIBITION

New Wedding Silver

by

Lapparra of Paris

and

Arthur J. Stone

THE LITTLE GALLERY
29 West 56th St., New York

Exercise 2

This example is set in 8-point Century Bold, with 18-point Century Bold figures. The figures rest on the second line which acts as a base.

MEN'S PURE WOOLEN SUITS,
LATEST FALL STYLES—BARGAIN..... **$30.00**

CRAVATS, FASHIONABLE COLORS,
LARGE VARIETY TO SELECT FROM..... **2.80**

MEN'S PURE SILK SHEER SOCKS,
VERY LATEST COLORS—GOOD VALUE..... **35c**

Exercise 3

Twelve-point Century Bold was used in this example, the figures being 24-point advertising, put into the assembling elevator by hand. This is a popular newspaper style.

Men's Fine Woolen Suits,
Latest Fall Styles..... **$30.75**

Cravats, in All the Fashionable Colors, a Wide Selection..... $2.80

Men's Silk Socks, Very Latest Colors.....3 Pairs $1.00

Dressing Robes—This Style Is the Sensation of the Season..... $8.75

Exercise 4

A neat display and a change in arrangement are accomplished by inclosing the composition in a box to match. The same type face and figures may be used as in the preceding exercise.

A New Line of Beautiful Silk Neckties... 90c

27 x 54-Inch Brussels Rugs..... $1.25

9 x 12 Tapestry Rugs $15.90

Submit proof of the foregoing exercise with answers to questions.

Exercise 5

Twenty-four-point Bodoni Bold sideheads, text of 10-point Title Bold, and 24-point Bodoni Bold overhanging figures comprise this example.

GIRLS' SKIRTS sold at a sacrifice **$15.00**

SOCKS Lisle, Silk, Rayon or Cotton, complete assortment, 6 pairs..... **$1.25**

SHOES Greatest values ever sold over the counter, today..... **$6.00**

FUR COATS Mink and Martin, new assortment **$6.00**

SHIRTS Broadcloths, Madras, Pongees of all descriptions.....$2.00

BOYS' SUITS snappy, double-breasted $8.00

BABY SHOES creamy-white and black kid.....$3.50

NECKTIES Real Shantung silk, many designs $2.50

MEN'S PANTS Selling old reliable line $3.98

HOW TO CARE FOR THE MACHINE

The Linotype and the Intertype machines are indeed very complicated pieces of mechanism. The machine that you are using is the product of the best scientific and mechanical skill, but this cannot insure a machine that will continue to run perfectly without attention. The responsibility for the satisfactory work of the machine henceforth rests with the operator.

At the outset, you should have the mechanical instruction necessary in order to keep the machine in proper working condition. If you will use a few minutes each day in keeping the machine clean, you will thereby save much time and get better results than if the cleaning were neglected. By referring to the second lesson, several vital factors in machine maintenance will be observed. The operator or shop owner, who desires to get the very best results from his machine, should heed to the letter the instructions which follow. The loss of time involved is so small that it is hardly a factor in the busiest of shops, and really speeds up production in the machine department of the composing room.

Care of the spacebands. Particular care is necessary with regard to the spacebands. The spacebands must be cleaned at least once every day, by rubbing on a graphited pine board. Better proofs will be obtained if spacebands are cleaned twice on each shift. They should not be rubbed in a circular manner, as this bevels the edges, but should be moved back and forth. Graphite must be used sparingly. As each spaceband must drop into the assembling elevator by its own weight, it is very important that the sleeve moves up and down without binding, before replacing it in the spaceband box.

Care of the matrices. At the end of each day, every matrix which runs down the pi channel should be put back on its proper tray and the tray put away in the sorts cabinet. Matrices should be picked up when dropped on the floor; bent matrices should be straightened, if they are

not too badly damaged, and run back in the machine. Dirty or oily matrices should be cleaned before running back into the magazine.

Matrices may be cleaned with the special cleaners now on the market. One of these is a hard piece of rubber which produces a high polish or luster that will enable the operator to read the reference side of the matrices distinctly. Remember to clean only the ears and the toes; do not touch the sides of the matrices. The foreign substance removed from the lugs will insure freedom from sticking when the matrices are run into the magazine and various parts of the machine. Benzine or gasoline may be used for cleaning matrices only when they are oily or gummy.

While operating the machine, if the operator notices a bright mark, either on the face of the matrix or on the ear or toe, and this shows up frequently, he should call the machinist, or if he is caring for the machine himself, he should look at the vertical alignment and parts of the machine that may be causing the damage. If the line does not seat itself properly in the vise jaws, the mold will shear the toes of the matrices. Any noticeable damage that is being done should be remedied immediately, before the font is badly damaged or destroyed. Whenever a hairline matrix shows up in a proof, remove it immediately from the magazine. A matrix proof of the font should be taken regularly, and all doubtful letters or characters removed.

Tight lines have the most harmful effect on both machine and matrices and, with very little effort, can be avoided by the operator if he will set his slide stop a little less than the measure to be set.

If an inexperienced person has moved the position of the various machine scales for cleaning, and has replaced them improperly, correct replacement can be made by using a slug between the vise jaws, and also between the assembler-slide finger and the star wheel, the vise jaw being set the proper slug length, while the assembler slide is set slightly under the measure, just so the slug fits tight between the assembler-slide finger and the star wheel.

Care of liners and matrix combination. The task of keeping the corners on liners perfectly square should receive special attention. The proper square ends or corners help considerably in making easier the task of setting any kind of multiple-slug composition.

The word "combination," used in connection with a Linotype matrix, refers to the saw-like teeth which are found on the sides of the triangular opening at the top of the matrix. There are seven of these teeth on each side and, for convenience in referring to them, they are numbered from 1 to 7. The teeth on both sides are numbered alike and, in cutting combinations, both sides are treated alike. The matrix combination is sufficient under ordinary conditions to last for years. It is possible, however, to ruin a set of matrices in a very short time by cutting or wearing out the combinations. The cause of the combinations becoming injured is invariably due to bad alignment at the various transfers.

Location where damage may occur. The first transfer is from the first-elevator jaws to the second-elevator bar, at the intermediate channels. A matrix, when in position in the first-elevator jaws at this transfer point, should line up with the bar, so that you will have a perfect transfer onto the bar without binding. There is a setscrew at the bottom of the first-elevator slide on the right-hand side for raising or lowering the slide. The alignment should be made as nearly perfect as possible, and if the second-elevator head, for any reason, does not seat properly on the intermediate-channel rails or if these rails are out of true, the trouble should be remedied, so that the second-elevator bar would be perfectly smooth and quite free from burs. This same rule applies with equal force to the distributor-box bar and the distributor bar.

The second transfer is from the second-elevator bar to the distributor-box bar. The second elevator, when in its normal position, should be so adjusted that the second-elevator bar will line up with the distributor-box bar. Any condition or obstruction preventing these bars from aligning properly should be removed.

The third transfer is from the distributor-box rails to the combination bar. The distributor-box rails should be perfectly square with one another. Place a matrix on the distributor-box rails and raise the outside distributor screw; then turn the distributor slowly by hand and see that the matrix when supported on the distributor-box rails will transfer freely to the combination bar. There must be perfect alignment at all these points; otherwise, undue wear on the matrix combination will result. (Use a sorts-matrix combination when making these tests).

DAILY OPERATIONS

Keep free from dust. Wipe the dust from the machine frame—the front, back, vise frame, underneath the pot, top of magazine, etc., using a rag and brush. With bellows or air hose, blow the dust out of the assembling elevator, keyboard, main-drive cams, and all other places not reached with a brush, except the metal pot.

Clean the mold disk. Use a brass rule and rag. Remove all metal from the face and back of the mold, scraping the metal loose with the brass rule and wiping with a rag. Remove all metal from behind the mold disk.

Keep mouthpiece clean. Wipe the mouthpiece with a rag, and scratch out the cross vents with a brass rule if they are filled or corroded.

Lubricate locking studs. Put a small amount of graphite and cup-grease mixture on the mold disk locking studs.

Inspect the mold wipers. Examine the front and back mold wipers; see that they are in working condition. A small amount of graphite and cup-grease mixture should be applied to the back-mold wiper. For the front-mold wiper, wet the pieces of felt in gasoline and then apply graphite until well saturated.

Clean the plunger and metal pot. Clean the plunger in the cleaning box. Use a well brush in the well. Open the holes on the side of the well, using the hook of the pot-mouth wiper. Skim the dross from the pot.

Inspect the knife wiper. See that it works freely up and down.

Inspect the pump-stop lever. See that it is working.

Inspect the vise-automatic dog. See that the vise-automatic dog and the stop rod are free from metal and that they move without interference.

Apply graphite. With a very small amount of graphite on a magazine brush, rub the following:

1. Line-delivery channel.
2. First-elevator jaws.
3. Front side of the intermediate bar in the elevator-slide top guide.
4. Slideway of the delivery.
5. Transfer-slide slideway.
6. Distributor-shifter slideway.
7. Top and front edge of the second-elevator bar plate.
8. Second-elevator upper guide.
9. Back and side of the second-elevator lower guide.

Clean the spacebands. Once in each shift, the spacebands must be taken from the machine and polished with graphite on a soft pine board. Lay the band flat on its face and rub it briskly backward and forward the long way of the band, using dry graphite. Do not rub in a circling movement, as it tends to round the edges, and then metal will cast between the band and the matrix and show in print. Never handle the bands with dirty or greasy hands, as the dirt and grease will be transferred to the matrices. If the metal does not rub off, scrape it with a piece of brass rule. The purpose of cleaning is to remove the discoloration or metal adhering to the bands. It will crush the sidewalls of the matrices when locked up.

WEEKLY OPERATIONS

Clean the distributor screws. Wipe with a clean rag. Insert the rag between the screws with a brass rule. Also clean the bearings of all surplus oil. This is very important, as it helps keep the matrices clean.

Clean the surface of the main driving cams. Clean thoroughly, using a rag slightly moistened with oil.

Test the vise automatic. See that the vise automatic stops the machine if the first elevator does not descend the full distance.

Oil the machine. Put oil in all oil holes, using it sparingly in the places where there is not much wear. Parts subject to heat should have plenty of oil. Wipe off all overflow oil with a rag while oiling. A very

small quantity in oil holes is usually sufficient. The late models of machines will have grease cups instead of oil cups. If there is plenty of grease in the cup, give it a turn.

(For a list of oil holes, see the mechanical-instruction books issued by both companies.)

MONTHLY OPERATIONS

Clean the magazine and matrices. Run out the matrices on a galley.

Take a matrix proof. This is done by running out all the matrices of each character and casting them on a slug. Then take a proof.

Clean the clutch. Remove the main driving clutch and clean the inner surface of the pulley and the leather buffers on the clutch shoes.

Clean the surface of the keyboard rollers. Use soap and water. Sandpaper them if necessary.

The above schedule for the care of the machine may be modified, as the exigencies of the shop may require. Individual users of a linecasting machine have a personal interest in, and a responsibility for, the care of the machine. In large plants where there is a battery of machines, a regular schedule of machinist inspections should be arranged and followed.

GLOSSARY

ASSEMBLER—A device attached to the face plate and situated just above the keyboard. The essential feature of this part is the star wheel which causes each matrix and spaceband that falls into the path of its rotating arms to be pushed to the left into the assembling elevator.

ASSEMBLER BELL—A small bell attached to the face plate, just above the assembler slide. This bell is struck by a small hammer, operated by a spring, and announces the near approaching end of the assembling of the line of matrices.

ASSEMBLING ELEVATOR—That part of the assembly group which receives and supports the matrices and spacebands during the assembling operation.

AUTOMATIC ACTION—On a Linotype, any action that may take place without direction from the operator. The cams may stop automatically, owing to an interference with the movement of a matrix or of the line.

BACK KNIFE—This knife trims the bottom of the slug to make it type-high (.918 inch).

BAND—(See Spaceband.)

BODY OF SLUG—The part of the slug formed in the mold. (Note Face of Slug.)

BORDER BLOCK—A piece of metal cut to receive a border slide, and having the same general contour as a matrix except as to width. Has no teeth or font slot. Made of iron or alloy steel. It fits in the first-elevator jaws, and, when in casting position, will cause the border-slide design to match with the mold cell.

BORDER SLIDE—A piece of brass with or without a sunken design, beveled to fit a border block.

CHANNEL ENTRANCE—A part containing guides which direct the matrices to the magazine after they drop from the distributor bar.

CONNECTING LINK—That part connecting the first-elevator lever to the first-elevator slide. It contains a compression spring which modifies the pressure on the lugs of the matrices during vertical alignment.

DISPLAY—Usually refers to the use of job or large faces on slugs, as compared with news or book faces.

DISTRIBUTOR BOX—That part where the matrices are separated in preparation for distribution.

DISTRIBUTOR SCREWS—The rotating parts which move the matrices along the distributor bar until the proper channel is reached, when the matrices drop by gravity into the channel entrance and are directed into the magazine.

DOUBLE WEDGE—Two simple wedges combined in one piece. This part is called a spaceband. The slide is the smaller part which is supported in the first-elevator jaws by its extended lugs which fit into grooves. The long, or wedge, part is joined to the smaller piece by a dovetailed part of the slide, fitting into a groove in the long wedge. The driving upward of the long wedge causes a uniform separation of the words in the line. The spacing of a line of matrices is accomplished by the upward movement of all the spacebands in the line. This is an example of automatic action.

EJECTOR BLADE—That part which pushes the slug from the mold.

ELEVATOR—A general term applied to the parts that raise the matrices in line formation from a lower to a higher position in the machine. Specifically, these parts are called assembling elevator, first elevator, second elevator. The assembling elevator is where the line is supported during assembling operations. The first elevator is where the line is supported during the preparatory operations that precede the casting of a slug. The line is raised to transferring position after the slug has been cast, and is delivered to the second elevator. This part (second elevator) carries the matrices to the distributor box to be separated.

FACE OF SLUG—That part of the slug which is cast outside the mold. The part of the slug cast in the mold is .875 inch in height. The face of the slug is .043 inch in height, beginning where the body of the slug ends. Do not form the idea from this that the body and face are two separate parts of the slug which is no different than a type which has its body, feet, and face. The face of a type from counter up differs a trifle from the face of a slug from the body up.

FIGURE SPACE—The figure space, which may have a leader character punched into its edge, represents a thickness equal to a figure. This space will be equal to 2 thin spaces, and also will be equal to one-half of the thickness of the em space. It is an en space, as figures are in type, and matrices gauged to occupy an en body. Special 3-to-em figure mats and spaces are also made by the manufacturers of Linotype and Intertype machines.

FIRST ELEVATOR (group name)—This part of the machine consists of the slide and back and front-elevator jaws. The elevator jaws are attached to the slide which furnishes the jaws their support and motions. The jaws receive the line of matrices and spacebands and support the line during the casting operation and until it is pushed out by the transfer-slide finger.

FOUR-EM SPACE—This matrix is also called the thin space, it being one-fourth the thickness of the em space and one-half the thickness of the en or figure space.

GALLEY—That part which receives the slug after it has been ejected from the mold. Sometimes called chase or stick.

HAIR SPACE—This is the thinnest of the units that compose a line. A thin space used in the line has a place in the magazine. A hair space is a matrix that ordinarily carries no combination web of teeth. It is placed in the line by the operator, and falls out of the line when the matrices and spacebands are transferred from the first elevator. The hair space drops into a receptacle called the hair-space box. These thin spaces, of sheet metal, steel, or brass, have the same general contour as a matrix, and may be had in several thicknesses—½-point, 1-point, and so on.

HANDSPACING—Handspacing, as the term implies, is a manual operation. When a line of matrices and spacebands is assembled, the operator's judgment may impel him to handspace the line, so that the spacebands, when driven up by the justification block, will tighten the line of matrices. This effect is brought about by the spreading action of the spaceband which is a double wedge. The need of handspacing is apparent to the operator who observes, when the line is nearly finished or is completely assembled, that the number of spacebands in the line is inadequate to fill out the space still left. This is determined by mental calculation, based on experience. The operator rarely fails in his judgment of the need of handspacing. The manner of spacing is to bring into the assembling elevator the number of thin spaces required. With the forefinger and thumb of the left hand, the matrices are withdrawn from the position they occupy near the star wheel, and are placed singly to the right of each spaceband. If there are four spacebands in the line, four thin spaces are added to the line, which effectively diminishes the amount of unused space in the line and permits the spacebands to tighten the line of matrices as a result. In some instances, the amount of unused space demands that figure spaces (en or 3-to-em spaces) be used instead of thin spaces.

HEADLETTER—The term may designate faces used for heads in a newspaper, or matrices, or a mold in which slugs are cast for heads or for advertising matter. Display mold and display face are other terms employed for the latter part.

INTERMEDIATE CHANNEL—That part which supports the second elevator during the transferring operations of the line of matrices from first to second elevator. It also supports the spacebands at the same time.

JUSTIFICATION—May relate to matter set on a machine. For example, certain kinds of composition are said to have two justifications when the lineup vertically of the characters must occur twice. The preparatory features of this kind of work require that the operator have experience and knowledge of how to arrange the line before it is sent away from the assembling elevator.

JUSTIFY—A line is said to justify when the matrices are spread and tightened by means of the spacebands while in the jaws of the first elevator. The action is purely mechanical, of which more will be explained under the proper head.

KEYBOARD—A mechanical unit attached to and supported by the base of the machine. It has ninety key levers, with buttons designating the matrix characters in the magazine.

KEYBOARD CAMS—These cams with yoke (ninety-one in number), by having contact with the key rods, cause the release of the matrices and the spacebands, and make one complete revolution every time a key button is depressed.

KEY BUTTON—A lettered piece of celluloid firmly attached to the front end of the key lever. The key buttons may be black, blue, or white, according to location on the keyboard. Some key buttons have two or more characters arranged on their faces.

KEY LEVER—One of the units of the keyboard. This piece is metal and projects edgewise through one of the many slots on the top plate of the keyboard. Each key lever has a celluloid key button attached to the front end. The rear end of the key lever terminates in a slot in the key bar.

KNIFE WIPER—That part which removes the metal shavings from the side knives after the slug is trimmed.

LETTERSPACING—The placing of thin spaces or hair spaces between the matrices of a word while assembling, or afterward, is called letterspacing. If the work is done by hand, it may be considered as one of the phases of handspacing.

LINE—The use of the term "line" should be restricted to an assembled line of matrices and spacebands. Do not call a slug a line.

LINE DELIVERY—That part which moves the assembled line of matrices from the assembling elevator to the first elevator.

MACHINE—The dictionary gives this definition: "A mechanism to transmit force and motion." Keep this in mind, for the reason that, when you are further advanced in keyboard work, you will be inclined to ask questions about the motion of parts, and from whence the force comes, together with related matters.

MAGAZINE—On the Linotype and the Intertype machines, the matrices are stored for use in a receptacle called the magazine.

MANUALLY—Work done by hand. For example, keyboard work is a manual operation. Casting of slugs is a mechanical operation.

MATRIX—A piece of brass metal having a character stamped intaglio on one side of its edges. (The word "intaglio," in this connection, signifies countersunk or stamped for producing a figure in relief—a type character. It is the opposite of "cameo," a raised design, seen often in brooches.) When the edge of the matrices is opposite the front of the mold cell, molten metal enters and forms relief characters on the top of the slug. The mold in which the face of the slug is cast, used in Linotype and Intertype composition. The plural form is matrices.

MECHANICALLY—Work performed by means of machinery.

METAL—When reference is made to Linotype metal, one is led to think of metal used expressly for making Linotype slugs. This metal is composed of lead, antimony, and tin, and has a standard formula.

METAL POT OR CRUCIBLE—That part which contains the molten metal which is pumped through the throat of the metal pot into the mold, thereby forming the slug.

MOLD—A part of the mold-disk group in which the slug is cast.

MOLD DISK—That part of the machine (a gear wheel) which contains the mold or molds.

ONE POINT—The standard Linotype point is .01383 for matrix dimensions. For slug thickness, the factor .014 is roughly used for convenience. A true point (standard) is .01383+ inch. Type points are based on this decimal fraction.

OPERATION—Manner of doing a piece of manual work. Procedure or method followed in doing work.

OPERATOR—One who works on a typesetting or a slugcasting machine, producing machine composition.

PLUNGER—This part operates in the well of the metal pot and pumps the metal from the pot into the mold.

POINT—May refer to any mark of punctuation in a sentence, or in indicating decimals. (See One Point.)

POT-CRUCIBLE MOUTHPIECE—That part of the crucible having small holes (called jets), through which the metal flows from the throat of the metal pot into the mold.

QUAD—As you have learned, while working at hand composition, the word "quad," as now used, is a shortened form of the word "quadrat." This term is applied to the character which is a square of the type body, and it is not type-high, therefore giving a white space when used in the line of type. In Linotype work, the em-space and the en-space matrices are sometimes referred to as em and en quads. This, of course, is not strictly correct. The space produced in a line of matrices by the use of these characters corresponds to similar space where quads are used in type matter.

RELEASING WIRE—This part is found near the right end of the back rail of the assembling elevator, and is for the purpose of raising the pawl to release the delivery slide.

SIDE-TRIMMING KNIVES—These knives trim the slug on both sides and give it proper thickness, as it is ejected from the mold.

SLUG—A rectangular-shaped piece of Linotype metal cast in a mold, which is one of the casting units of the machine. The slug may have printing characters on the face, or may be blank. Its height corresponds to type; that is, .918 inch. A blank slug is .875 inch in height.

SLUGCASTING MACHINE—A machine producing a slug, as previously described.

SORTS CHANNEL—That part which receives matrices which are not cut to run in the magazine (technically expressed "do not run keyboard"), such as special characters, border, etc.

SORTS STACKER—That part which assembles the matrices on a holder, after they pass through the sorts channel or pi-stacker tube.

SPACEBAND—One of the units in the line of matrices. Mechanically, a spaceband is a double wedge, consisting of a long, tapering steel piece of uniform width, but having a thickness which varies approximately from .032 to .095 inch. The sliding piece has two bevel-shaped parts attached, which fit into suitably beveled grooves lengthwise of the long wedge. A stop pin prevents the slide from becoming detached while in use. The sliding part is about 1⅝ inches in length, and a trifle more than ¾ inch wide on the projecting lugs which support it during its various lateral motions. The sliding piece is called the slide, and when the line of matrices is being assembled, the spaceband is supported by the extending lugs of the slide, which rest on the assembling elevator. The assembling thickness of a medium spaceband is .0375 inch, and, if driven up to full height before casting, it separates the words approximately .100 inch.

SPACEBAND KEY—The key on the left of the keyboard is called the spaceband key.

SPACER—One of the names applied to the spaceband. Band is another term commonly used.

STICK—The assembly box or compartment into which matrices are deposited by the continuous traveling belt.

TABULAR—Type or Linotype composition, set in column form, is called tabular composition. There is a large variety of this work.

THIN SPACE—In Linotype work, the thin space is the thinnest of the spacing characters carried in the magazine. Usually, it is one-half the thickness of the figure space, and one-fourth the thickness of the em space. The thinnest thin space used, which runs into the magazine, is 2 points in thickness (.0277 inch).

THREE-EM SPACE—In Linotype work, no 3-em space is regularly used. The spaceband takes its place in regular composition; however, as it is a variable unit in the line, it cannot be called a 3-em space. Such characters are special when used for figures or spaces.

TOOL—A device used to perform some kind of manual or mechanical laber. Tweezers, composing stick, and makeup rule may be called printer's tools. A Linotype machine, in a broad sense, is a printer's tool, as he uses it to produce a slug.

TRANSFER-SLIDE FINGER—That part which pushes the matrices from the first-elevator jaws to the second elevator, and also pushes the spacebands under the spaceband-lever pawl.

TYPOGRAPHIC—That which relates to printing from type, or from relief surfaces.

VERGE—This is the small lever under each channel at the lower end of the Linotype magazine only. It forms the connection between the key rods and the pawls, and imparts the reciprocating motions to the pawls.

VERGE PAWL—That part of the escapement which, by a downward movement, releases the matrices from the channels. It is in the bottom of each channel at the lower end of the magazine.

VISE—This term is applied to a large group of parts attached to the front of the machine, just opposite the mold disk. This group swings on a shaft and supports the first elevator, vise jaws, and trimming knives, as well as the apparatus used in bringing about justification of the line of matrices. It is locked by two large screws, acting somewhat in the same manner as the screw which closes a vise jaw; hence, the name.

VISE JAWS—Jaws of the vise are called the right and the left vise jaws. They have a similar purpose to the jaws of a composing stick, as they limit the length of the line while it is justified mechanically. These jaws are attached in the vise frame, and are the parts which receive the matrices and limit their sidewise motion while the line is justified and the slug is cast.

WEDGE—The long part of the spaceband unit is called the wedge.

WELL—That part of the metal pot which contains the metal previous to its being pumped into the mold.

SUMMARY

HOW TO SET NEWSPAPER HEADS; HOW TO SET DISPLAY ADS; HOW TO CARE FOR THE MACHINE

Aim: To teach how to set newspaper heads and display ads and how to care for the machine.

Things to know:

1. Headletter men are selected from the most proficient men on the force of the composing room.
2. The headletter operator often must change the wording to get the head in the measure.
3. A certain latitude is granted to him in this respect.
4. Every office has its own particular style in regard to capitalization, punctuation, use of proper names, and other printing customs, and must be followed by the operator.
5. Preliminary practice on display heads should be from reprint copy.
6. This copy provides the opportunity to study indentions and spacing.
7. A group of figures should not be divided in a head.
8. Type faces more than 18 point are usually run in the side magazine.
9. Some fonts are cut with the lower-case letters running in the capital section of the main magazine and the capitals running in the auxiliary magazine.
10. Advertising figures can be run in the side magazine. When using these figures, they are left on the lower rail, as they are stamped in the regular position instead of the auxiliary position.
11. Every machine, of whatever nature, requires care to insure satisfactory performance.
12. The Linotype and the Intertype are products of the best scientific and mechanical skill.
13. Each contains many complicated and delicate parts which require periodic attention.
14. Cleanliness contributes 20 per cent to operating efficiency.
15. An orderly arranged and well-kept sorts board adds another 5 per cent to this productivity.
16. The metal pot requires constant attention.
17. The matrices must be kept clean, without hairlines, and broken or bent matrices must be removed from the font.
18. Molds must be cleaned regularly, so that the lines will eject properly.

19. Spacebands require daily attention.
20. Plunger and well must be cleaned daily.
21. Only clean metal should be put into the metal pot.

Equipment:

Linotype or Intertype headletter or machine with auxiliary magazines for large type faces, copy, recessed molds for headletter and display faces, advertising-mold cap for all advertising figures, side rules and recasting block, oil, rags, and cleaning polish.

Things to do:

1. See that the headletter mold is in operating position.
2. Put the flap over to the right under the first elevator.
3. When using the auxiliary magazine, press down the button on left of keyboard marked "Lock."
4. As practice on this lesson, set the examples shown in the explanation of the setting of the heads.
5. Put as many as possible of the type faces to be used in the ad on the machine at one time.
6. Change the mold caps and liners to prescribed sizes.
7. Proceed to set the display heads and subheads.
8. When using 18 point or larger, be certain the line is in the auxiliary position, meaning on the rail or using the flap.
9. Observe what characters run pi.
10. Set all job lines before setting straight matter.
11. Perform the daily operations as outlined.
12. Follow the same procedure with weekly operations.
13. List the monthly operations required.
14. Locate each of the parts mentioned in the daily operations, making a list of them in a notebook.

Precautions:

1. Be sure to use the flap when using the recessed mold in conjunction with the display faces.
2. Do not use oversize liners with the advertising-mold cap, in view of the fact that the machine will not lock up correctly.
3. Check the recessed-mold cap with the size of liners to be used.
4. Release the quick-drop latch when setting headletter faces to insure perfect face.
5. Do not forget to open the knife when setting a line with advertising figures.
6. Also remember to set the knife back to the point size of the lines when the advertising-figure line has been ejected.

TEST QUESTIONS

Write neatly and legibly. Check your answers carefully before mailing. Use both sides of theme paper.

1. What is the basis for point measurement for slug thickness?
2. What controls capitalization, punctuation, use of proper names, and other printing customs?
3. Where can advertising figures be run?
4. What spoils many ads?
5. On linecasting machines equipped with a number of magazines, what should be done to speed up production?
6. Why should a regular system of the care of machines be adopted?
7. Why should the spacebands receive special care in cleaning?
8. What are some of the advantages of keeping the matrices clean?
9. What requires constant attention?
10. How much does cleanliness contribute to operating efficiency?

Submit proofs of Figure 4 and Exercise 4 with answers to questions.

INDEX

The figure preceding the hyphen represents the lesson number; that following, the page number.